



# **NAVAL POSTGRADUATE SCHOOL**

**MONTEREY, CALIFORNIA**

## **THESIS**

**CHINESE MILITARY MODERNIZATION AND THE FUTURE  
OF TAIWAN**

by

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December 2003

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**CHINESE MILITARY MODERNIZATION AND THE FUTURE OF  
TAIWAN**

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## **ABSTRACT**

The potential military capabilities of the People's Republic of China (PRC) carry tremendous implications for the Republic of China (ROC) on Taiwan. The PRC's military modernization efforts are quickly eroding the ROC's qualitative military advantage. As the PRC modernizes, the possibility for a peaceful reunification diminishes. However, if it chooses an aggressive solution for reunification, the PRC recognizes that it may have to contend with the United States coming to Taiwan's aid.

This thesis addresses the PRC's efforts to modernize its armed forces. Since 1985, Beijing has initiated a dedicated process of preparing the People's Liberation Army (PLA) to fight future wars. Through detailed analysis of U.S. military campaigns in the Middle East and the Balkans, the PRC has implemented new doctrine and equipment to help transform the PLA into a superior fighting force. As it modernizes, the PRC is developing strategies to force Taiwan's reunification with the mainland. Also, the PRC is developing asymmetric methods to defeat the possible presence of U.S. forces in the Taiwan Strait. The modernization of the PLA is dedicated towards achieving both of these goals.

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## **GLOSSARY OF ACRONYMS**

AAA	Anti-Aircraft Artillery
AAM	Air-to-Air Missile
AAW	Anti-Air Warfare
ABM	Anti-Ballistic Missile
ACM	Air Combat Maneuvering
ACS	AEGIS Combat System
ALCM	Air Launched Cruise Missile
AOR	Area of Responsibility
ASAT	Anti-Satellite
ASCM	Anti-Ship Cruise Missile
ASUW	Anti-Surface Warfare
ASW	Anti-Submarine Warfare
ATBM	Anti-Tactical Ballistic Missile
AWACS	Airborne Early Warning and Control Systems
BMD	Ballistic Missile Defense
BMP-3	Infantry Fighting Vehicle
C2	Command and Control
C2BM	Command, Control and Battle Management
C4I	Command, Control, Communications, Computers and Intelligence
C4ISR	C4I, Surveillance and Reconnaissance
CAP	Combat Air Patrol
CAS	Close Air Support
CCP	Chinese Communist Party
CEP	Circular Error of Probability
CIWS	Close-In-Weapon-System
CMC	Central Military Commission
CNA	Computer-Network Attacks
DDG	Guided Missile Destroyer
DSMAC	Digital Satellite Matching
DZ	Drop Zone
ECM	Electronic Counter Measure
ELINT	Electronic Intelligence
EMP	Electromagnetic Pulse
EW	Electronic Warfare
FIST	PLA Rapid Reaction Unit
GBL	Ground Based Lasers
GPS	Global Positioning System
IADS	Integrated Air Defense System
ICBM	Intercontinental Ballistic Missile
IFV	Infantry Fighting Vehicle
INS	Inertial Navigational System

IO	Information Operations
ISR	Intelligence, Surveillance and Reconnaissance
LACM	Land Attack Cruise Missile
LSM	Landing Ship – Mechanized
MBT	Main Battle Tank
MIRV	Multiple Independent Reentry Vehicle
MIW	Mine Warfare
MLRS	Multiple-Launch Rocket System
MR	Military Regions
MRBM	Medium-Range Ballistic Missile
NCO	Non-Commissioned Officer
NETRD	Naval Equipment and Technological Research Department
NVG	Night Vision Goggles
ONI	Office of Naval Intelligence
OTH	Over-the-Horizon (Strike)
PGM	Precision Guided Munitions
PLA	People’s Liberation Army
PLAAF	People’s Liberation Army Air Force
PLAN	People’s Liberation Army Navy
PLANAF	People’s Liberation Army Navy-Air Force
PRC	People’s Republic of China
PSYOPS	Psychological Operations
R&D	Research and Development
RAS	Replenishment-At-Sea
ROC	Republic of China
SAM	Surface-to-Air Missile
SATCOM	Satellite Communication
SLBM	Submarine-Launched Ballistic Missile
SLCM	Submarine-Launched Cruise Missile
SLOC	Sea Line of Communication
SMF	Strategic Missile Force
SPH	Self-Propelled Howitzers
SRBM	Short-Range Ballistic Missile
SS	Diesel Submarine
SSBN	Strategic Ballistic Missile Submarine (Boomer)
SSM	Surface-to-Surface Missile
SSN	Fast Attack Submarine
TERCOM	Terrain Contour Mapping
TRA	Taiwan Relations Act
TSEA	Taiwan Security Enhancement Act
UAV	Unmanned Aerial Vehicles
VFR	Visual Flight Regulations
WMD	Weapons of Mass Destruction



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# **I. INTRODUCTION**

## **A. BACKGROUND**

In 1949, the Chinese Communist Party was able to defeat the Nationalists in a brutal civil war. The Nationalists, under the leadership of Chiang Kai-shek, evacuated their party to Taiwan. Thereafter, the Nationalists and the Communists each sought to find ways to reunite the two parties and to become a unified China once again. Throughout the past fifty years, the United States has intervened more than once in defense of Taiwan. Since the Taiwan Relations Act of 1979, the United States has never officially pledged its support in defense of Taiwan, but continues to support Taiwan principally in the form of its naval presence and arms sales. The People's Republic of China (PRC) understands the significance of United States and Western technology and is taking steps to address it.

Although Taiwan in recent years has taken a less direct approach to independence from the PRC, it continues to receive military support from the United States. The PRC sees these arms shipments as a clear violation of its national sovereignty and making reunification increasingly difficult.<sup>1</sup> The PRC began the modernization of its military in 1985 not only to become a better fighting force, but also to prepare to make credible its threat to use military force against Taiwan. In the past eighteen years, the PRC has made significant strides in transforming its military from an obsolete, large manpower-intensive force to a more technologically advanced, specially trained military. The PRC still needs to achieve numerous advances in its military to successfully invade Taiwan, but it is well underway to achieving that objective.

The military build-up of the PRC near the Taiwan Strait has given analysts several possible scenarios. The recent build-up of short-range ballistic missiles and the missile tests off the coast of Taiwan show that the PRC is in a position to use these missiles against airfields, naval bases and communications centers.<sup>2</sup> A preliminary

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<sup>1</sup> Jamestown Foundation, "On Taiwan, Beijing Knows Exactly What it is Doing," 8 November 2001, [china.jamestown.org/pubs/view/cwe\\_001\\_009\\_002.htm](http://china.jamestown.org/pubs/view/cwe_001_009_002.htm). 10 January 2003.

<sup>2</sup> Boston Herald, "New Pentagon Report See Danger to Taiwan in China's Military Modernization", 12 July 2002, [www.bostonherald.com/news/international/ap\\_taiwan07122002.htm](http://www.bostonherald.com/news/international/ap_taiwan07122002.htm). 30 January 2003.

missile attack could eliminate the qualitative edge Taiwan has over the PRC. Due to the introduction of missile defense into the region by the United States, however, the PRC knows it cannot rely solely on this strategy to achieve victory. Purchases of long-range fighters, Russian destroyers and submarines allow the PRC to conduct a possible blockade of the Taiwan Strait before any invasion takes place.<sup>3</sup> China knows it does not have properly trained amphibious forces or air-support to achieve a successful invasion in the short term, but it continues to modernize its military towards that capability.

## **B. RELEVANCE TO U.S. INTERESTS**

It is important for the United States to understand the actions of the PRC in their effort to modernize its military. The People's Liberation Army (PLA), including its Navy and Air Force, is becoming more technologically advanced. Even though the funds are not abundantly available, the PRC has a clear and distinct path it wants to take its military. The PRC wants to ensure that no security risk can go unchallenged. In the eyes of the PRC, until reunification, Taiwan remains the biggest issue its military may have to address.

## **C. THESIS QUESTION**

This thesis will examine the implications of China's military modernizations for Taiwan. It will assess which factors the PRC needs to achieve its objectives. Also, it will assess the level of modernization undertaken by the PLA and its ability to conduct successful operations against Taiwan. Finally, the thesis will show what actions the PRC has taken to thwart the possible intervention of the United States.

## **D. ORGANIZATION**

Chapter II will offer a brief introduction to the division of the PRC and Taiwan. Also, it will examine the history of relations between the countries and why the United States and other countries in the region worry about the modernization of China's military.<sup>4</sup>

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<sup>3</sup> S.C. Chang, "A Sea of Danger Surrounds Taiwan," 26 March 2002, [www.fas.org/news/taiwan/2000/e-03-27-00-7.htm](http://www.fas.org/news/taiwan/2000/e-03-27-00-7.htm). 9 September 2002.

<sup>4</sup> Robert G. Sutter, "China Policy: Crisis Over Taiwan," in *Taiwan-China: A Most Ticklish Standoff*, ed. Adam W. Clarke, 124-140. (Huntington: Novinka Books, 2001), p.136.

Chapter III will present the modernization of the People's Liberation Army Navy (PLAN). Currently, the PLAN does not have a sufficient capacity to conduct a successful amphibious assault. Not only does the PLAN not have adequate training, but also the terrain and waterways surrounding Taiwan make an amphibious assault extremely risky.<sup>5</sup> However, recent purchases of Russian destroyers and submarines may allow for alternative actions to invasion. Naval blockades and trade restrictions may prove to be one of China's more viable alternatives to a costly invasion.

Chapter IV will present the modernization of the People's Liberation Army Air Force (PLAAF). Even before the 1991 Persian Gulf War, the PLAAF recognized its qualitatively inferior aircraft were no match for Taiwan's Air Force. Since the Gulf War, the PLAAF has taken measures to not only destroy large numbers of its obsolete aircraft, but began the purchase of newer aircraft. Also, the PLAAF's airborne assault troops and the purchase of long-range troop carriers needed to conduct such an operation will be discussed.<sup>6</sup>

Chapter V will present the modernization of the People's Liberation Army Second Artillery Corps. The Second Artillery Corps is most modern force in the PLA. The majority of the missiles in the Second Artillery Corps are aimed at Taiwan and increasing in number daily. Also, the Second Artillery Corps is modernizing its nuclear inventory in a hope to deter the United States from assisting Taiwan.

Chapter VI will present the modernization of the People's Liberation Army. The PLA has changed in size and doctrine dramatically over the past eighteen years. Due to numerous military defeats and the success of the United Nations coalition during the Gulf War, the PLA knew it needed a drastic change in order to fight more effectively at home and against Taiwan. Numerous changes in doctrine forced the PLA to become a sleeker, more responsive fighting force. Joint warfare has become one of the most important training evolutions in the modernization of the PLA. The PLA recognizes that it is the

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<sup>5</sup> Bernard D. Cole, *The Great Wall at Sea* (Annapolis: Naval Institute Press, 2001), pp. 154-6.

<sup>6</sup> Kenneth W. Allen, "PLA Air Force Operations and Modernization," in *People's Liberation Army After Next*, ed. Susan M. Puska, 189-237 (Carlisle: Strategic Studies Institute, 2000), pp. 198-199.

most efficient way to gain success on the battlefield and continually trains to achieve it.<sup>7</sup> The chapter will also discuss several other modernization projects of the PLA.

Chapter VII will assess the potential responses by the PRC towards the U.S. military in a Taiwan crisis. The PRC has two plausible scenarios for aggressive reunification: an amphibious assault and a naval blockade. Both scenarios provide two distinctly different outcomes for Taiwan's capitulation. The PRC is assuming the United States will help Taiwan and is currently developing asymmetric methods in order to defeat the United States.

The conclusion will summarize the points raised throughout the thesis. Also, it will discuss where the PRC may stand militarily and diplomatically if aggressive action is taken towards reunification.

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<sup>7</sup> Paul H.B. Godwin, "The PLA faces the Twenty-First Century: Reflections on Technology, Doctrine, Strategy and Operations" in *China's Military Faces the Future*, ed. James R. Lilley and David Shambaugh, 39-63 (Washington, DC: American Enterprise Institute, 1999), p. 45.

## **II. PRC-ROC RELATIONS**

### **A. BACKGROUND**

Since 1949, both the Nationalists on Taiwan and the Communists on mainland China have sought ways to once again unify China. In preparation for reunification, both the Communists and the Nationalists built up their militaries. When the government on Taiwan finally understood that it was no match for the People's Republic of China's (PRC) quantitative superiority and could not successfully invade the mainland, the Republic of China (ROC) began an international call that it was the one true government of China. In 1954, Washington and Taiwan signed the U.S.-ROC Mutual Defense Treaty and allowed the ROC to achieve a qualitative military edge over the PRC relatively quickly. As advanced U.S. military equipment was staged on Taiwan and after the People's Liberation Army (PLA) engaged in combat in Korea and Vietnam, and with the Soviet Union, the PRC understood its military was seriously obsolete and in the 1980s began modernization programs for all its forces. The PRC intends to acquire hi-tech foreign military equipment, but also to establish its own infrastructure to build advanced equipment and ensure only minimal reliance on foreign military goods. Due PRC international requests to stop interfering with Taiwan and the PRC's efforts to modernize, the qualitative edge the ROC military forces once had over the PRC forces is diminishing.<sup>8</sup> As the PLA transforms itself into a modern force, the stability of the Asian-Pacific region comes into question. If the PRC leadership continues on its current path, the PLA will not only be in position to rival every military power in the region, but also will possess the ability to force the ROC to reunify. This chapter discusses the turbulent relations between the ROC and the PRC and the threat a modernized PLA poses to the Asian-Pacific region and the U.S. military.

### **B. HISTORY OF PRC-ROC RELATIONS**

Throughout their fifty-four year history, the relations between the PRC and the ROC have been less than cordial. Each government has sought ways to reunify the two

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<sup>8</sup> David Shambaugh, "A Matter of Time: Taiwan's Eroding Military Advantage," *The Washington Quarterly* (Spring 2000), p. 120.

countries by both diplomatic and military means. Since the late 1990s, the ROC has pursued an indirect approach to independence, but seeks it nonetheless. The PRC has no desire to see an independent Taiwan, and professes this fact emphatically to the international community. In its 2002 National Defense White Paper, the PRC discusses the leadership on Taiwan as the greatest threat to peace in the region and Taiwan's inability to accept the "one China" principle as one of the main roadblocks to regional stability.<sup>9</sup> The views of both the PRC and the ROC over exactly which is the legitimate China were formulated over fifty years of turbulent politics. Several historic events shaped the evolution of the ROC's claim as the artificial legitimate government of China and the "one China" principle promulgated by the PRC in the international arena.

During the Korean War, the ROC became one of the main focuses of U.S. foreign policy in Asia. At the start of the Korean War, the United States decided not to recognize the PRC and favor the government on Taiwan due to the rise of Communism on the mainland and the Cold War with the Soviet Union beginning to take shape around the world. The United States believed the PRC would take advantage of the combat in Korea and invade Taiwan to reunify the two territories. The US also had similar beliefs about the Soviet Union invading Europe during the war and assumed that the Soviet Union and the PRC worked closely together. Assuming possible PRC aggression, President Harry Truman ordered the US Seventh Fleet to patrol the Taiwan Strait in an effort to neutralize the PRC from invading Taiwan and to prevent the ROC from attacking the mainland.<sup>10</sup> After three years of patrols in the Taiwan Strait, the presence of the Seventh Fleet was deemed effective by President Dwight Eisenhower and he ceased the patrol in 1954. The end to the Seventh Fleet patrol was far from the end to trouble in the Taiwan Strait (See Figure 1 for a map of this area).

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<sup>9</sup> See the full text of the PRC's 2002 White Paper on China's National Defense, Beijing *Xinhua Domestic Service*, 9 December 2002, in FBIS-2002-1209.

<sup>10</sup> Harry S. Truman, "Statement by the President," 27 June 1950.  
[www.trumanlibrary.org/whistlestop/study\\_collections/korea/large/week/kw\\_27\\_1.htm](http://www.trumanlibrary.org/whistlestop/study_collections/korea/large/week/kw_27_1.htm). 17 November 2003.





Figure 1. Federation of American Scientists, [www.fas.org/man/dod-101/taiwan-geo.htm](http://www.fas.org/man/dod-101/taiwan-geo.htm).

After the Korean War, the PRC and ROC were involved in two Taiwan Strait Crises. The first crisis began in 1954. The ROC saw an opportunity to intensify harassment attacks against the PRC and gain possession of the unclaimed Pescadores Islands. The PRC took the ROC actions as aggression towards the mainland and began shelling the Taiwan coast. The United States, in response to the PRC, signed the US-ROC Mutual Defense Treaty with Taiwan. The treaty was an ambiguous response by not directly stating what the United States would do in the event of PRC aggression. With the treaty so ambiguous, the PRC attacked ROC troops on Yijiang Island.<sup>11</sup> Chiang Kai-shek mobilized his best equipped troops to defend Yijiang Island and professed once again that Taiwan was the legitimate government of China. President Eisenhower validated

<sup>11</sup> Chi Huang, Woosang Kim and Samuel S.G. Wu, "Rivalry between the ROC and the PRC," in *Inherited Rivalry: Conflict Across the Taiwan Straits*, eds. Tun-jen Cheng, Chi Huang and Samuels S.G. Wu, 25-37 (Boulder: Rienner Publishers, 1995), pp. 33-34.

Chiang's perspective regarding Taiwan by passing the Formosa Resolution. Fearing a significant blow to Nationalist freedom, this resolution committed U.S. military forces to defending Taiwan and the surrounding areas if the PRC attacked.<sup>12</sup> The commitment of U.S. forces to the defense of Taiwan, and pressure from the Soviet Union, forced the PRC to stop shelling Taiwan.

The second Taiwan Strait crisis occurred in 1958 and marked a significant defense policy change for the PRC. Until 1958, the PRC received military and economic aid from the Soviet Union. By doing so, it was assumed, the PRC followed defense policies congruent with the Soviet Union's own policies. With political ties between the Soviet Union and the PRC now quickly disintegrating, the PRC wanted to show its power independent from its ally.<sup>13</sup> In addition to the Pescadores Islands, the PRC was angry over Taiwan's occupation of the Quemoy and Matsu Islands.<sup>14</sup> In August 1958, the PRC once again began to shell ROC-controlled territories. The Nationalists responded by bombarding the PRC guns with the jet aircraft provided by the United States. While the ROC counterattacks were effective, poor PLA logistics could not sustain the shelling with the amount of ammunition available and ceased combat operations. Although unable to secure these islands, the PRC sent a message to the Soviet Union and the region, that its defense policies were their own to form and implement.

Harassment attacks and military threats between the PRC and ROC continued throughout the 1960s, but in 1969, an event unrelated to Taiwan forced PRC-ROC tensions to sway in the PRC's favor. In 1969, the Soviet Union became the PRC's number one enemy after the 1968 Soviet Invasion of Czechoslovakia and by engaging China in a border conflict in 1969. Mao Zedong publicly no longer saw the United States or Taiwan as immediate threats to China. Mao saw the United States and the Soviet Union as equally evil, but only the Soviet Union shared a border with China. Mao saw the border conflict with the Soviet Union as necessitating a tactical accommodation with

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<sup>12</sup> Ibid, p. 34.

<sup>13</sup> Harvey Nelsen, "Continuity and Change in Chinese Strategic Deterrence," in *Chinese Defense and Foreign Policy*, eds. June Teufel Dreyer and Ilpyong J. Kim, 239-267. (New York: Paragon House, 1988), pp. 239-252.

<sup>14</sup> Martin L. Lasater and Peter Kien-hong Yu, *Taiwan's Security in the Post-Deng Xiaoping Era* (London: Frank Cass, 2000), p. 45.

another enemy of the Soviet Union and possibly as an opportunity to end the PRC troubles with Taiwan.<sup>15</sup> As normalization talks began, Mao changed his rhetoric towards Taiwan from purely militaristic to a mixture of peace initiatives and military threats that allowed a Sino-US détente to emerge. It also marked the beginning of the end of international recognition of Taiwan's claims of being the legitimate Chinese government.<sup>16</sup> Mao impressed upon the United States that Taiwan was no longer a major issue and that the Soviet Union was their common enemy and concern. This U.S. policy shift proved extremely beneficial to the PRC.

After Mao's death in 1976, Deng Xiaoping took control of the PRC. Deng's main goals were normalization with the United States and the peaceful reunification of Taiwan. President Nixon's talks with Mao and Deng's desire for normalization talks led to the establishment of the U.S.-PRC diplomatic relations in 1979.<sup>17</sup> With the establishment of diplomatic relations with the United States, Deng announced a new "peaceful reunification" approach to Taiwan. In accordance with prior agreements, the United States acknowledged the PRC position that there is one China and Taiwan is a part of that China. This United States acknowledgement ended the artificial legitimacy the ROC maintained in the international arena.<sup>18</sup>

Although the artificial legitimacy of the ROC ended, the relationship between the United States and the ROC became ambiguous on purpose with the passing of the Taiwan Relations Act (TRA) in 1979. The TRA stated that the United States terminated all governmental relations with the ROC in order to maintain peace and stability in the Western Pacific.<sup>19</sup> Although the United States wanted to maintain its new ties with the PRC, the United States also did not want Taiwan to be swept up by China without its consent. Therefore, the TRA established a U.S. policy of strategic ambiguity toward

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<sup>15</sup> Maurice Meisner, *Mao's China and After*, 3<sup>rd</sup> ed. (New York: Free Press, 1999), pp. 378-379.

<sup>16</sup> Parris Chang, "Beijing's Policy Toward Taiwan: An Elite Conflict Model," in *Inherited Rivalry: Conflict Across the Taiwan Straits*, eds. Tun-jen, Chi Huang and Samuel S.G. Wu, 65-79 (Boulder: Rienner Publishers, 1995), pp. 66-67.

<sup>17</sup> *Ibid.*, p. 67.

<sup>18</sup> Meisner, p. 529.

<sup>19</sup> U.S. Congress, *Taiwan Relations Act*, US Code Title 22 Chapter 48 Sections 3301-3316. <http://www.taiwandocuments.org/tra01.htm>. 24 July 2003.

Taiwan, a policy enforced for the past twenty-four years.<sup>20</sup> To support its new policy, the TRA states that the reunification of Taiwan should be determined by peaceful means, but it also authorized U.S. arm sales to Taiwan in an effort to defend against possible PRC aggression. The TRA allows the US the opportunity to defend Taiwan in the event of PRC aggression, but also allows the US to use diplomatic means against the PRC to stop the use of force.<sup>21</sup> This policy is strongly opposed by the PRC. In an effort to show its disapproval, the PRC on numerous occasions protested to Washington.<sup>22</sup> In 1982, the United States agreed to limit arms sales to Taiwan to maintain strategic cooperation with the PRC against the Soviet Union. In response, President Reagan sent a letter establishing six assurances to the ROC that Washington would:

- 1) Not agree to set a date certain for ending arms sales to Taiwan;
- 2) Not agree to engage in prior consultations with Beijing on arms sales to Taiwan;
- 3) Not play any mediation role between Taipei and Beijing;
- 4) Not agree to revise the TRA;
- 5) Not alter its longstanding position on the issue of sovereignty over Taiwan; and
- 6) Not attempt to exert pressure on Taiwan to enter into negotiations with the PRC.<sup>23</sup>

These assurances both apprised the PRC where the United States stood on the Taiwan issue and reassured the ROC that the United States would not allow Beijing to take advantage of them.

PRC-ROC relations remained relatively calm until Lee Teng-hui, the successor to Chiang, visited his alma mater, Cornell University. During his visit, Lee made it a point to vocally profess the existence of a Republic of China on Taiwan.<sup>24</sup> The media attention Lee's visit received gave the PRC the impression the United States was stepping away

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<sup>20</sup> See CRS Report 30341, *China/Taiwan: Evolution of the "One China" Policy –Key Statements from Washington, Beijing and Taipei-Updated* 12 March 2001, by Shirley Kan, p. 3. <http://www.fas.org/man/crs/RL30341.pdf>. 4 August 2003.

<sup>21</sup> Michael E. O'Hanlon, "A Need for Ambiguity" (*New York Times*, 27 April 2001). <http://www.brook.edu/dybdocroot/views/op-ed/ohanlon/20010427.htm>. 7 August 2003.

<sup>22</sup> James C.P. Chang, *U.S. Policy Toward Taiwan* (Cambridge: Weatherhead Center for International Affairs, June 2001), pp. 5-6. <http://www.wcfia.harvard.edu/fellows/papers00-01/chang.pdf>. 25 July 2003.

<sup>23</sup> Ibid., p. 7. The "Six Assurances" can also be found in CRS Report 30341.

<sup>24</sup> Alan D. Romberg, *Addressing the Taiwan Question: The U.S. Role* (Washington, DC: Henry Stimson Center, 2002), p. 6. <http://www.stimson.org/pubs.cfm?ID=62>. 7 August 2003.

from the “one China” policy and helping Taiwan move towards independence. Lee further infuriated the PRC by dispatching Taiwanese warships to Singapore as part of a friendly port visit. Also, Germany’s untimely announcement of eased restrictions on arms sales for Taiwan forced the PRC to act. The PRC, infuriated with continued outside interference, warned foreign leaders not to interfere with China’s reunification.<sup>25</sup> In Beijing’s mind, these events forced it to remind Taiwan of the “one China” policy.

In 1995-1996, to show its resolve about Taiwan being part of China, the PRC announced it would conduct a series of military exercises off Taiwan’s coast. These exercises were designed to coincide with the Taiwanese presidential election and warn the people and government of Taiwan to limit their calls for independence. The first exercise took place in July 1995 with the launching of six PLA missiles towards Taiwan. The second exercise took place in March 1996. As part of the exercise, the PLA used the Second Artillery Corps, the strategic missile force, to launch M-9 short-range ballistic missiles near Taiwan for seventeen days.<sup>26</sup> In response to the SRBM launches, the United States directed two U.S. Navy carrier battle groups to the Taiwan Strait. While the Battle Groups steamed toward Taiwan, the PLA conducted an air and sea portion of the military exercise. The PLA deployed combat aircraft and submarines in a limited joint venture to each end of the Taiwan Strait. One of the most significant elements of the 1995-1996 Taiwan Strait Crisis was the PLAN’s ability to deploy submarines designated to blockade the Strait.<sup>27</sup> A naval blockade is seen as the most likely scenario of a Chinese effort to unify Taiwan by force.<sup>28</sup> The 1996 Taiwan Strait crisis ended with the PLA concluding its military exercise, but it also received foresight as to how the United States might react to future PRC aggression toward Taiwan and ideas on how to counter the U.S. threat.

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<sup>25</sup> Douglas Porch, “The Taiwan Strait Crisis of 1996: Strategic Implications for the United States Navy,” *Naval War College Review* (Summer 1999), p. 18.

<sup>26</sup> Bill Gertz, *Betrayal: How the Clinton Administration Undermined American Security* (Washington DC: Regnery Publishing, 1999), p. 82.

<sup>27</sup> Porch, p. 21.

<sup>28</sup> David Shambaugh, *Modernizing China’s Military: Progress, Problems and Prospects* (Berkeley: University of California Press, 2002), p. 321.

The ambiguous relationship between the US-PRC-ROC continued in the late 1990s. In 1998, President Bill Clinton traveled to the PRC for a state visit and announced his “three-no’s” policy. President Clinton stated:

We don’t support independence for Taiwan; or two Chinas; or one Taiwan, one China. And we don’t believe that Taiwan should be a member in any organization for which statehood is a requirement.<sup>29</sup>

President Clinton’s announcement of the “three-no’s” policy was extremely controversial and seen as appeasement to the PRC for few gains and a withdrawal of support for the ROC. To counter these claims, President Clinton supported a bipartisan bill passed by Congress in 1999 to support the ROC. The Taiwan Security Enhancement Act was initiated due to the PRC’s refusal to renounce the use of force in the reunification of Taiwan and due to the PLA’s modernization program; the defense of a democratic Taiwan by its own people was seen in jeopardy. The TSEA allowed the U.S. Secretaries of State and Defense to analyze ROC defenses and implement appropriate military sales.<sup>30</sup> The end result was the United States increasing sales of advanced military aircraft and warships to Taiwan. With the increased sales of advanced military weaponry to the ROC, the PRC has protested to Washington warning about the ill effects to Sino-U.S. relations of increased arm sales. At the same time, the PRC has understood the capability of hi-tech U.S. weaponry due to its intense studies of the Persian Gulf War and the campaign in Kosovo. With the possibility of facing such equipment off its coast, the PLA has focused its modernization efforts on defeating the capabilities of a more technologically superior enemy.

President George W. Bush has maintained the policy of strategic ambiguity with Taiwan and continues to support the “one China” policy. However, in the early days of his presidency, President Bush came under severe criticism for his comments on ABC’s *Good Morning America*. When asked by reporter Charles Gibson if the United States was obligated to defend Taiwan if China attacked, President Bush responded affirmatively

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<sup>29</sup> Lasater, p. 196.

<sup>30</sup> U.S. Congress, House Internal Relations Committee, *Taiwan Security Enhancement Act*. HR 1838 (26 October 1999). <http://www.taiwansecurity.org/IS/IS-991026-TSEA.htm>. 7 August 2003.

and added “the Chinese must understand that” he would use whatever it took to help Taiwan.<sup>31</sup> Many critics felt that this was a divergence from the “one China” policy, but White House officials quickly stated President Bush’s statement was no different from past U.S. policies. In a visit to Washington in December 2003, the PRC’s Premier, Wen Jiabao, was reassured by President Bush that a declaration of independence from Taiwan would not be supported by the United States unless it was in agreement with China’s wishes. However, President Bush also made it clear that a peaceful solution to reunification must be achieved between China and Taiwan.

### C. RELEVANCE OF PLA MODERNIZATION

In 1985, the PRC began a dedicated process of PLA modernization with the intent of accomplishing numerous new political and strategic goals for the PRC. First, and foremost, the PRC wants to be prepared for military action against its primary security threat, Taiwan. With a modernized PLA and reunification with Taiwan, the PRC will be one step closer to reaching its long-term strategic goal: regional hegemony.<sup>32</sup> Currently, PLA forces are not equipped to accomplish either of these goals, but within the next twenty years the PLA may become a peer competitor to the United States in the Asian-Pacific Region and greatly affect the future of Taiwan.

According to the PRC’s 2002 national defense white paper, Beijing opposes all kinds of hegemonisms, combats terrorism in all forms and manifestations, and will strive to create an environment dedicated to peace, stability and security.<sup>33</sup> While Beijing states publicly that peace and stability are its goals, the modernization of its military shows the opposite. Its modernization program is directly aimed towards the use of hi-tech weaponry against its enemies, particularly Taiwan.<sup>34</sup> As its claims to various territories in the Asian-Pacific Region intensify, the PRC justifies PLA modernization as necessary to defend against foreign aggression, to resist domestic enemies, and to secure its borders.

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<sup>31</sup> George W. Bush, interview with Charles Gisbon, *Good Morning America* ABC, Washington. 25 April 2001. [http://more.abcnews.go.com/sections/gma/goodmorningamerica/gma010425bush\\_100days.htm](http://more.abcnews.go.com/sections/gma/goodmorningamerica/gma010425bush_100days.htm). 1 Dec 03.

<sup>32</sup> Michael D. Swaine and Ashley J. Tellis, *Interpreting China’s Grand Strategy: Past, Present and Future* (Santa Monica: RAND, 2000), p. 232.

<sup>33</sup> *Xinhua*, 2002 White Paper on National Defense.

<sup>34</sup> Eric McVadon, “Taiwan’s Dilemma: Contemplating the Components of Comprehensive Defense, Deterrence and Diplomacy” (lecture, Monterey Institute of International Studies, Monterey, CA, 6 June 2003).



The PRC is creating highly mobile, specialized units to secure its borders and ensure the swift resolution to any crisis it may face.

The PLA seeks one of the U.S. greatest military assets: the ability to project power. The PLA Navy (PLAN) seeks to develop better capabilities for various reasons.<sup>35</sup> First, the PRC currently has an increasing dependence on foreign oil imports from the Middle East. The PRC recognizes the U.S. Navy currently keeps the sea lanes open and allows foreign oil to reach China. The PRC does not feel secure about the U.S. control over this key facet of their economy and well-being. Second, the PRC wants to exert greater influence over the Yellow Sea, South China Sea and the East China Sea. By exerting greater influence, the PRC believes it would be able to ensure greater security on the mainland by maintaining control of the territories along its borders. By achieving the ability to project power, the PRC will be one step closer to becoming a regional hegemon.

Further evidence that PLA modernization affects Asian-Pacific security is in the PRC's "new concept of security." This new security concept was officially submitted in a 1998 PRC Defense White Paper. The new concept postulates peaceful coexistence and that no other nation should interfere with the internal affairs of another nation.<sup>36</sup> This new concept was specifically directed at the United States for the increased military sales to Taiwan, the U.S. alliances in Asia, and the continued military presence in the region. Although, the new concept states that nations should not resort to military threats or aggression, the PRC still refuses to withdraw its threats of force against Taiwan if it declares independence because Beijing considers Taiwan sovereignty an internal matter. In the minds of PRC leaders, PLA modernization is also necessary to maintain security against domestic threats.<sup>37</sup> The PRC's stance for continued military modernization, a

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<sup>35</sup> Harold Brown, Joseph W. Prueher and Adam Segal, *Chinese Military Power: Report of an Independent Task Force* (Council on Foreign Relations, 12 June 2003), p. 44.  
[http://www.cfr.org/publication\\_print.php?id=5984&content=](http://www.cfr.org/publication_print.php?id=5984&content=) 30 July 2003.

<sup>36</sup> People's Republic of China, Information Office of the State Council, "China's National Defense" (*Beijing Review*, August 1998), p. 14.

<sup>37</sup> Jonathan D. Pollack, *American Perceptions of Chinese Power* (Naval War College, 2000), p. 3.  
<http://www.nwc.navy.mil/apsg/papers/Chinese%20Military%20Power2.htm> 7 August 2003.



reluctance to withdraw threats of force against Taiwan and a desire to project its power throughout Asia will have a dramatic effect over the region in the coming years.

#### **D. SUMMARY**

The PRC is preparing for its future by modernizing its military as a means to reunify with Taiwan. The PRC understands that Taiwan wants its independence, but if it declares independence without international support the US may not become involved in its defense. However, the PRC's own defense papers discuss the need to modernize its military to defend against security threats and interference from foreign nations with its internal business. If these mandates are deemed violated, the PRC feels it has the right to use its military in its own defense against any aggressor. In the next twenty years, the PRC will have a modernized military force capable of competing with the US and any defenses on Taiwan. Once achieving its goal of a modernized military, the PRC will then be one step closer to achieving its grand strategy of regional hegemony and forcing Taiwan to make a decision, one way or another, on the reunification question.

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### III. PEOPLE'S LIBERATION ARMY NAVY

#### A. BACKGROUND

For most of its existence, the PLA Navy (PLAN) has been largely ignored by the PLA leadership. Even though the Navy is part of the PLA, the infantry forces have traditionally received the bulk of the defense budget. China's leaders believed the PLA infantry was most important to the defense of the PRC. This neglect forced the PLAN to wither and become an obsolete fighting force. Since the 1980s, the PRC has changed its views of the PLAN and now is taking action to make the PLAN a modern navy.

The PRC understands that an advanced maritime capability will allow it to confront its enemies on the high seas, provide a forward maritime defense presence for the mainland, rapidly deploy its forces in the Western Pacific and eventually extend the PRC past its land borders into the Pacific Ocean.<sup>38</sup> Currently, the PLAN does not have the naval assets either to defend its borders or deploy a blue ocean force. Most ships in the PLAN are used only for coastal defense and cannot steam far from their homeports due to poor maintenance and a lack of operational training. The PRC foresees an advanced maritime capability as affecting its standing throughout the world and is preparing for the future. To gain this capability, the PRC has implemented intensive modernization programs for the PLAN. These programs have focused on eliminating older ships, building a new amphibious fleet and acquiring advanced foreign warships and submarines to augment the fleet past its obsolescence.<sup>39</sup> As the PLAN modernizes, its new advanced fleet will directly affect the future of Taiwan and also the Western Pacific by allowing the PLAN to conduct long-term naval operations in hopes of achieving regional hegemony. As the PLAN modernizes and begins to project its power, the PLAN will be a key factor in forcing Taiwan to reunify. This chapter discusses the progress of PLAN modernization and the role the PLAN will play in the PRC's grand strategy.

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<sup>38</sup> Swaine and Tellis, p. 162.

<sup>39</sup> US Department of Defense, Office of the Secretary of Defense. *Annual Report on the Military Power of the People's Republic of China* (Washington, DC: July 2003), pp. 24-27.  
<http://www.defenselink.mil/pubs/20030730chinaex.pdf>. 1 August 2003.

## **B. WARSHIP MODERNIZATION**

### **1. Surface Combatants**

The PLAN is one of the largest navies in the world. Despite this quantitative advantage, the PLAN currently does not pose a significant threat to ROC forces due to its technological inferiority.<sup>40</sup> In the past, the PLAN's inability to develop indigenous technology or effectively to reverse engineer foreign technology created a wide qualitative gap between the PLAN and the ROC Navy. This was due to the PRC's not having the economic resources needed to keep up with the advanced warships the ROC was receiving from the United States and because the PLAN received little emphasis and therefore budget allocations because of its limited role in PRC defense strategy.

The PLAN surface fleet currently consists of 62 surface combatants, 39 mine warfare ships, 368 coastal patrol craft and four replenishment-at-sea oilers.<sup>41</sup> The poor state of the PLAN surface fleet does not allow its surface combatants to venture far from their homeports and allow the PLAN to secure China's coasts much past its littoral waters. However, the PRC has implemented new programs to turn the PLAN surface fleet around with advanced surface and anti-submarine capabilities. Also, with the United States restricting sales of its most advanced warships to Taiwan, the PRC is beginning to close the qualitative gap. Due to renewed interaction with Russia, the PRC has received advanced warships capable of propelling the PLAN into a blue-water navy. Also, the PLAN has focused on retrofitting its few relatively well-maintained surface combatants in the fleet with advanced radars and weapon systems capable of effectively engaging U.S. and ROC warships.

The weakest link of the PLAN's surface fleet in the Taiwan Strait is the *Jianghu*-class frigates. The *Jianghu* was designed to be used much like the U.S. *Oliver Hazard Perry*-class frigates, deploying a large number of inexpensive ships designed for shallow-water operations and operating with few offensive capabilities. The *Jianghu* has proven to be an outdated design and no longer is applicable in today's world of combat. With the

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<sup>40</sup> David Shambaugh, "China's Military in Transition: Politics, Professionalism, Procurement and Power Projection," in *China's Military in Transition*, eds. David Shambaugh and Richard H. Yang, 1-34 (Oxford: Clarendon Press, 1997), p. 25.

<sup>41</sup> Brown, Prueher and Segal, p. 44.

*Jianghu* weak in all warfare areas, its sole purpose is to only conduct surveillance off the coast of Taiwan. However, the PLAN has retrofitted the *Jianghu* to carry the C-802 anti-ship cruise missiles (ASCM), which has a range of seventy nautical miles and able to travel at Mach 0.9.<sup>42</sup> The PLAN intends for the *Jianghu* to protect the more advanced surface combatants by taking the first enemy missiles attacks. Even with the C-802 capability, the poor radar system on the *Jianghu* will not be able to detect the ROC ships attacking before they are attacked themselves. In an effort to rebuild its frigate fleet, the PLAN is developing an indigenous model designated the *Type-054* Stealth Frigate. The Stealth Frigate will eventually replace the aging *Jianghu* and patrol the Taiwan Strait in an effort to gather better surveillance of Taiwan. The current *Type-054* design has improved radar and weapon systems and a hull less likely to give off a strong radar signature. Another reason behind the *Type-054*'s production is Taiwan's French-built *Lafayette* frigate, which has many of the same capabilities.<sup>43</sup> The development of the *Type-054* shows the PLAN will no longer allow ROC forces to receive advanced weapon systems without advancing their own current forces.

Unlike the poor capabilities of the *Jianghu*, the *Luhai*-class destroyer is one of the great strides the PLAN has made to build indigenous warships with better war-fighting capabilities. Based on reverse engineering of the Soviet designed *Luda*-class destroyer, the *Luhai* destroyers are an advance in every way over the earlier *Luda*. The *Luhai* carries the C-802 ASCM, surface-to-air missiles (SAM) and has a less radar-reflective hull, but it still lacks exceptional anti-submarine warfare (ASW), electronic warfare (EW) and over-the-horizon (OTH) strike capabilities.<sup>44</sup> The *Luhai* will be deployed at the forward edge of the battlefield, much like the *Jianghu*, but with its capabilities it will be a more effective weapon against U.S. and ROC forces. Fortunately for ROC forces, the *Luhai* can easily be prosecuted by air assets or shore emplacements.

After the 1995-1996 Taiwan Strait Crisis, the PLAN saw the need for a surface combatant to effectively attack U.S. carriers and warships after two U.S. carrier battle

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<sup>42</sup> Shambaugh, *Modernizing China's Military*, p. 269.

<sup>43</sup> Richard D. Fisher, "China's Accelerates Navy Building" (*China Brief*, Vol. 3, Issue 15, 29 July 2003), p. 11. [http://china.jamestown.org/pubs/views/cwe\\_003\\_015\\_004.htm](http://china.jamestown.org/pubs/views/cwe_003_015_004.htm). 1 August 2003.

<sup>44</sup> Shambaugh, *Modernizing China's Military*, p. 268.

groups began patrolling off the coast of Taiwan. One of the PLAN's major foreign acquisitions towards this need is the Russian *Sovremenny*-class guided missiles destroyer (DDG). The *Sovremenny* was originally designed during the Cold War for the specific purpose of escorting Soviet carriers and destroying American ones.<sup>45</sup> When Russia decided to sell its destroyer fleet, the PLAN wanted the *Sovremenny* for its patrols of the Taiwan Strait. These destroyers are equipped with SS-N-2/Sunburn ASCMs and the SA-N-7 SAM systems, both designed for long-range attacks on enemy surface combatants and helicopters. The Sunburn has a range of 120 nautical miles (nm), travels at Mach 2.5 and stays low to the surface of the water to ensure ROC and U.S. weapon systems cannot defend against it. In 2001, the PLAN successfully launched a Sunburn and requisitioned more of these missiles from Russia because of their excellent performance.<sup>46</sup> The *Sovremenny* destroyers are also equipped with the AK-630M 30-mm Gatling gun, comparable to the U.S. Navy's close-in-weapon system (CIWS), and the 130-mm dual-purpose gun.<sup>47</sup> Both weapons systems are designed to defeat any attacks from ROC and U.S. forces while allowing the offensive systems of the destroyer to conduct a successful counterattack. The *Sovremenny* proved its combat potential so well that the PLAN has reportedly ordered two more destroyers be added to its fleet. Once these destroyers are purchased they will most likely be stationed in the East Sea Fleet, responsible for the Taiwan Strait. The purchase of the two *Sovremenny* destroyers greatly improved the PLAN's anti-ship capability and forces U.S. naval planners to revise their actions in the Taiwan Strait.

Due to the advancement of airpower as the primary weapon used in combat, a PLAN surface combatant without proper air defense capabilities is useless. Equipped with F-16 Falcons the ROC Air Force has air power superiority over the Taiwan Strait. The ROC Air Force routinely trains to sink PLAN warships due to the lack of adequate anti-air warfare (AAW) capabilities on PLAN warships. However, the PLAN recognizes this weakness and has developed a destroyer designed for AAW. Based on the U.S.

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<sup>45</sup> Ibid., p. 267.

<sup>46</sup> Bill Gertz, "China Tests Supersonic Anti-Ship Cruise Missiles" (*Washington Times*, 25 September 2001). <http://www.taiwansecurity.org/News/2001/WT-092501.htm>. 30 July 2003.

<sup>47</sup> See *Annual Report on the Military Power of the People's Republic of China*, p. 25.

AEGIS Combat System, the PLAN recently launched the No. 170-class destroyer with characteristics similar to the ACS. The No. 170's hull is designed to be less radar-reflective, consists of a Russian OTH targeting system and implements a vertically launched missile system firing both indigenous and Russian anti-air missiles (AAM). The PLAN not only sees the deployment of the No. 170-class as a great accomplishment for the PLAN research and development (R&D) department, Naval Equipment and Training Research Department (NETRD), but with the United States still not providing the ROC Navy with ACS capable ships, it sees itself as quickly closing the qualitative gap with Taiwan.<sup>48</sup> The No. 170 is yet to be tested in field conditions, but if the exercise goes as well as the tests, the No. 170 will be an effective deterrent against ROC aircraft. The PRC is calling the No. 170 destroyer "China's Magic Shield" and has grand plans for its use against Taiwan.<sup>49</sup>

The East Sea Fleet, headquartered at Ningbo, has designated the Taiwan Strait part of its AOR and will most likely be the PLAN headquarters for any attack on Taiwan.<sup>50</sup> The East Sea Fleet is devising plans to conduct naval operations against the ROC, but also understands numerous capabilities are lacking for successful operations. The PLAN needs two items to effectively conduct long-term naval operations against Taiwan and to project naval power in the Western Pacific. First, the PLAN does not have the ability to refuel with its surface combatants at sea (RAS). RAS is important to PLAN naval operations because it will allow continuous and efficient steaming from the East Sea Fleet homeport to Taiwan and back. The PLAN does have four RAS oilers, but the majority of PLAN ships do not regularly train to RAS. The inability of the PLAN to conduct RAS efficiently is a detriment to long-term blockade in the Taiwan Strait and continuous naval operations off the Taiwan coast. However, the PLAN is making strides to add RAS to its training doctrine and practiced on a regular basis. Also, the PLAN is allocating more money to building more oilers for the fleet. Although important, RAS will not be adequate for some time in the PLAN.

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<sup>48</sup> Fisher, "China Accelerates Navy Building," p. 11.

<sup>49</sup> *People's Daily*, "China's New Missile Destroyer: the 'Magic Shield of China,'" 29 May 2003. <http://taiwansecurity.org/News/2003/PD-052903.htm>. 7 August 2003.

<sup>50</sup> Cole, *The Great Wall at Sea*, p. 88.

The second PLAN need is to project its naval power is an aircraft carrier. The PRC has seen the United States respond numerous times to a crisis in the Taiwan Strait with carrier battle groups. The PRC has seen an aircraft carrier as an effective combat tool not only off of its coast, but in the analysis of combat in Arabian Gulf and Kosovo. Through analyzing its potential, the PRC has had numerous debates over whether to build PLAN aircraft carriers. The deployment of a PLAN aircraft carrier has powerful persuasive potential against Taiwan, but current problems with the PLAN do not make it a viable option. According to media reports, the PRC purchased three decommissioned aircraft carriers from Russia, Ukraine and Australia after the 1996 Taiwan Strait crisis. Due to poor funding and a lack of operational training, one carrier was scrapped, another turned into a casino and the last one will eventually be turned into a theme park.<sup>51</sup> Even though the PLAN trained some of its senior officers to command a carrier at sea, the PRC has no intention to build or purchase a deployable carrier in the next few years. If the PRC does begin a dedicated process of building a carrier without proper funds, Taiwan will be able to sleep better because a large amount of the PRC's limited resources will evaporate. However, if Beijing's debates cease and the economic success of China allows it to build a carrier, the ROC will be in significant trouble due to the PRC new ability to project its power on Taiwan.

## **2. Anti-Submarine Warfare**

The use of submarines in the Taiwan Strait is a key element in any forceful reunification scenario. The PRC knows the proper use of submarines will be the main obstacle to surface combatants safely patrolling the Taiwan Strait. With anti-submarine warfare (ASW) extremely hard to conduct due to the terrain and the lack of practice by the ROC, the PLAN is training its submarines to take advantage of the situation in the Taiwan Strait. As their efficiency grows, the PLAN hopes to be able to control not only the surface, but also the subsurface waters around Taiwan.<sup>52</sup> Based on this importance, the PRC is providing significant resources to the PLAN not only to build, but purchase foreign diesel and nuclear submarines. Numerous acquisitions from Russia have proven

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<sup>51</sup> Shambaugh, *Modernizing China's Military*, pp. 270-271.

<sup>52</sup> Shen Zongchang, Zhang Haiying and Zhou Xinsheng, "21<sup>st</sup> Century Naval Warfare," in *Chinese Views of Future Warfare*, ed. Michael Pillsbury, 261-284 (Washington, DC: National Defense University, 1997), p. 265.



beneficial, but the Russian *Kilo* submarines with ASCM capability have significantly augmented the PLAN inventory of submarines. Also, the NETRD has made significant strides in developing quieter hulls using indigenous technology with Russian help. A PLAN submarine patrolling the Taiwan Strait can wreck havoc on any ROC or U.S. surface combatant trying to defend the coast. The increased use of PLAN submarines will substantially affect the ROC's ability to secure its coast from invasion. It will also force U.S. planners to use aircraft carriers differently than in the past.

The majority of the PLAN's 69 submarines are the poorly maintained and hardly deployed Soviet *Romeo*-class diesel (SS) submarines. These submarines are horrible ASW due to poorly trained crews and a significant lack of logistics forcing engineering problems to go unchecked.<sup>53</sup> Unless deployed in large numbers, the *Romeo*'s provide no value to the PLAN in Taiwan Strait operations due to their poor operability. As part of the PLAN modernization program, the NETRD has developed two submarines using reverse engineering from the *Romeo*. Both submarines are a slight advancement over the older *Romeo*, but they are still not as quiet as the Russian *Kilo*. The *Ming*-class submarine is an upgrade over the older *Romeo* submarine, but it is too obsolete for modern undersea combat. The *Ming*, like the *Romeo*, can be deployed in large numbers to operate in the shallow waters off the coast of Taiwan, but cannot do much more due to its obsolete systems. The *Song*-class improves on the *Ming* design in every way. The *Song* has a better sonar system, and a better navigational system and is not plagued by the logistical problems like its predecessor. Therefore, the *Song* has the ability to be underway more and receives better training opportunities from the PLAN. The *Song* was designed with a skewed propeller for quieter running and an offensive missile capability specifically designed to attack surface combatants while still submerged. The *Song* carries the YJ-82 ASCM, a submarine launched cruise missile.<sup>54</sup> While not the quietest submarines in the world, the ability for the PLAN to operate numerous submarines off Taiwan and the ROC inefficiency in ASW will help the PLAN deny the waters around Taiwan to its enemies.

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<sup>53</sup> Cole, *The Great Wall at Sea*, pp. 96-97.

<sup>54</sup> See *Annual Report on the Military Power of the People's Republic of China*, p. 26.

The purchase of four *Kilo*-class submarines from Russia helps propel the PLAN submarine fleet toward becoming a modern fleet. Not only are the *Kilo* submarines extremely quiet and effective ASW platforms, but Russia is selling the submarines cheap together with the training and logistics necessary to deploy these submarines for long periods of time. According to ONI, the *Kilo* is rated as quiet as an improved U.S. *Los Angeles*-class nuclear (SSN) submarine and gives the PLAN a significant advantage over the ROC.<sup>55</sup> The acquisition of the *Kilos* gave the PLAN numerous submarine capabilities it previously lacked. The *Kilo* carries wake-homing and wire guided torpedoes, better acoustic sensors for submarine detection, reinforced hulls and an advanced engineering system that allows longer submersion before having to recharge their batteries.<sup>56</sup> With a quieter design, better offensive weapons and an extremely effective sonar system, the *Kilo* will prove an effective deterrent to ROC surface combatants that are not sufficient in ASW.

Mines are effective weapons designed to control chokepoints and the perfect offensive weapon to aid in the blockade of the Taiwan Strait. Mine warfare (MIW) is extremely easy to implement and extremely difficult to counter, especially with the ROC's limited experience in MIW. The ROC Navy does not have a dedicated group of MIW ships able to efficiently counter a mine threat and has no plans to designate one. The PLAN has 39 mine warfare ships, but they are of questionable operational readiness.<sup>57</sup> However, the PLAN has implemented doctrine to conduct MIW from all its platforms, especially submarines. According to the 2003 U.S. Congress report on the PRC's military, the PLAN has an excellent supply of mines capable of seriously deterring surface combatants. The NETRD has either developed mines, or purchased foreign ones, of varying technologies designed to thwart commercial shipping entering into Taiwan, as well as warships. The PLAN mines available are bottom and moored influenced, mobile, remote-controlled, and propelled-warhead mines, used especially in the deep water

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<sup>55</sup> Richard D. Fisher, "Foreign Arms Acquisition and PLA Modernization," in *China's Military Faces the Future*, eds. James Lilley and David Shambaugh, 85-125 (Washington, DC: American Enterprise Institute, 1999), p. 102.

<sup>56</sup> Shambaugh, *Modernizing China's Military*, p. 273.

<sup>57</sup> Cole, *The Great Wall at Sea*, p. 80.

outside the Taiwan Strait.<sup>58</sup> As quiet PLAN submarines train in laying mine fields at each end of the Taiwan Strait, the ROC needs to recognize the effectiveness of this threat or a significant warfare area will give another advantage to the PRC.

The first PRC attempt at an indigenous nuclear fast attack submarine (SSN) was the *Han*-class. The PLAN has five *Han* SSNs, but each is in horrible operational condition. Due to poor PLAN maintenance, the *Hans* are located in the North Fleet area and spend the majority of time in port. The PLAN desires a quiet SSN to patrol the Taiwan Strait for surveillance purposes, but with its loud noise signature easily detectable by ROC and US forces, the use of a *Han* in the Taiwan Strait is highly unlikely. However, the PLAN is expected to correct the problems of the *Han* by launching the first boat in the *Type-093* class around 2005. The *Type-093* is expected to be based on Russian hull technology and will carry land attack cruise missiles (LACM), anti-ship cruise missiles (ASCM), wire guided and wake-homing torpedoes and mines.<sup>59</sup> The advanced engineering system is likely to be as quiet as the *Kilo* submarine. Once the *Type-093* class is launched, it will replace the *Han* submarines. The PLAN will then deploy the new SSN in the East Sea Fleet for continued patrols through the Taiwan Strait. The full number of *Type-093* submarines entering PLAN service is expected to be four by 2010.<sup>60</sup> As the new SSN replaces the older one, the PLAN will overpower any ROC ASW prosecution in the Taiwan Strait.

Along with SSN advancements, the PLAN plans to overhaul its strategic submarine fleet. The PLAN currently has one nuclear, ballistic missile submarine (SSBN), the *Xia*. The *Xia* was overhauled in the late 1990s for extended service around Taiwan, but still remains largely inoperable. The PLAN desires to develop mobile strategic deterrence with a new SSBN fleet. For this purpose, the PLAN is developing is the *Type-094*. The PLAN intends to launch the *Type-094* SSBN with Russian assistance and maintenance. The *Type-094* will reportedly have a quieter engineering system and be able to travel globally from its homeport, unlike the *Xia*. For its strategic deterrence, the

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<sup>58</sup> See *Annual Report on the Military Power of the People's Republic of China*, p. 27.

<sup>59</sup> Shambaugh, *Modernizing China's Military*, p. 272.

<sup>60</sup> See *Annual Report on the Military Power of the People's Republic of China*, p. 28.

*Type-094* is scheduled to carry the JL-2 submarine-launched ballistic missile (SLBM), which carries a multiple independent reentry vehicle (MIRV) still in development.<sup>61</sup> The JL-2 is expected to have a range of roughly seven thousand miles and several independent-targeted nuclear warheads. With a quieter SSBN sailing through the Pacific Ocean, the ROC and the United States will need to provide more assets dedicated to defend Taiwan and prosecute the SSBN.

### **C. AMPHIBIOUS FORCES**

The PLAN amphibious fleet is less than stellar. An amphibious assault on Taiwan is seen as the riskiest option the PRC can take and deemed highly unlikely. The current fleet of 56 amphibious ships could not move more than a division (12,000) of PLA infantry soldiers and 400 armored vehicles, hardly enough to ensure a successful invasion of Taiwan.<sup>62</sup> However, the PLAN recognizes its weakness and has made considerable efforts to make an amphibious assault successful. Also, the PLAN has put forth considerable resources to build up its Marine Corps, while manpower throughout the PLA decreases.

In an effort to modernize its amphibious fleet, the PLAN intends to build enough landing craft to support the transportation of numerous PLA infantry divisions. The goal is to have enough landing craft transporting more than enough infantry divisions, both front line and reserve, to assault Taiwan. As noted before, the current PLAN landing craft could not support the troops needed to invade Taiwan. A ratio of five PLA soldiers for every ROC soldier, over one million PLA troops, is needed to conduct a successful invasion.<sup>63</sup> The current amphibious fleet is only adequate to secure one the offshore islands claimed by Taiwan. The PLAN is currently producing the *Yudeng* and *Yuhai* landing ships (LSM) in an effort to build up the fleet, but their numbers will not be adequate for quite some time. The ROC understands that the rough terrain along the coast and the lack of adequate PLAN amphibious ships is a great advantage against an

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<sup>61</sup> Bernard D. Cole, "China's Maritime Strategy," in *People's Liberation Army After Next*, ed. Susan M. Pushka, 279-327 (Carlisle: Strategic Studies Institute, 2000), p. 306.

<sup>62</sup> Michael O'Hanlon, "Why China Cannot Conquer Taiwan" *International Security*, Vol. 25, No.2 (Fall 2000), p. 62.

<sup>63</sup> Shambaugh, *Modernizing China's Military*, p. 325.

amphibious assault, but they cannot rely on the PLAN's lack of capabilities as its own defense.

The main amphibious force of the PLAN is its Marine Corps. The Marine Corps is designed much like the U.S. Marines and acts as a rapid reaction force dispatched to quell hotspots, insert small units into enemy-occupied areas and secure airfields and landing zones in support of the arriving larger PLA divisions. The PLAN considers the Marine Corps its elite unit and outfits it with only the best equipment and personnel.<sup>64</sup> The Marines are trained to operate independently only for a short time and can handle light armored forces on their own. The PLAN Marines will most likely lead the amphibious invasion of Taiwan by securing ROC naval facilities and off-shore gun emplacements. However, if a large armored force or enemy close-air support (CAS) begins intensive attacks as it crosses the Strait or is left without air cover as it moves inland, it will not last long.

The PLAN followed the example of U.S. military forces and began intense joint operations among their services. Recent amphibious exercises were designed to simulate an assault on a beachhead. These exercises included PLAN Marines working closely with PLA regular infantry to assault beachheads. In a Taiwan scenario, the Marines would land on a simulated contested beach and secure ROC gun emplacements and to allow heavier armored units to move forward.<sup>65</sup> With the rest of the PLA regular infantry getting smaller, the PLAN Marine Corps continues to get larger and is striving to become the PRC's most efficient fighting force. ROC forces need plans to contend with PLAN Marines landing on their beaches. If not and ROC forces allow PLAN Marines to advance past the contested ROC beachhead, it will cause serious problems for Taiwan's effort to control the flow of PLA infantry coming ashore.

#### **D. PLAN AVIATION**

Much like the rest of the PLA, the PLANAF has operated with obsolete equipment for most of its existence. The PLANAF began an earnest effort to weed out

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<sup>64</sup> You Ji, *The Armed Forces of China* (London: I.B. Tauris Publishers, 1999), p. 193.

<sup>65</sup> Paul H.B. Godwin, "From Continent to Periphery: PLA Doctrine, Strategy and Capabilities Towards 2000," in *China's Military in Transition*, eds. David Shambaugh and Richard H. Yang, 200-223. (Oxford: Clarendon Press, 1997), p. 218.

aircraft that are either poorly maintained or logistically cannot be sustained. Their inventory has decreased from 800 aircraft to roughly 485.<sup>66</sup> The PLANAF consists of helicopters and jet aircraft located on surface combatants and shore facilities, respectively. Most of the jet aircraft in the PLANAF arsenal are older PLAAF models, consisting of fighters, bombers and strike aircraft. The PLANAF has not yet been issued any of the new Russian acquisitions, the Su-27 Flankers or Su-30 MKK, but it continues to request them. Much like the PLAAF, the PLANAF suffers from a lack of flight time and an inability to conduct long-range flights. The PLAN intends to modernize the PLANAF to overcome its weaknesses and make it a significant arm of its fighting force.

The Russian aircraft bought by the PRC have aided the PLANAF significantly. The PLANAF recently acquired eight Russian KA-28 destroyer-based ASW helicopters, with the intention of implementing them into their surface fleet.<sup>67</sup> The PLAN analyzed U.S. Navy operations and recognized that the combination of a surface combatant with a helicopter can make an extremely effective team. The PLAN wants its ship-based helicopters to be efficient in all types of warfare. The KA-28 is not only designed for ASW, but has an advanced C4ISR system. C4ISR provides the PLAN with an OTH capability which allows it to strike both land and sea targets. Another advantage of the advanced helicopter, the KA-28 can work jointly with a surface combatant in prosecution of an enemy submarine. The surface combatant can configure the prosecution far away from any danger, while the helicopter engages the submarine from above. The PLAN sees the full implementation of ship-based helicopters as integral to the future outlook for maritime combat.

The PLANAF has also begun intense operations with the PLAAF. Without an aircraft carrier, the PLANAF needs viable shore-based facilities close enough to Taiwan to launch strikes against ROC ships, shore emplacements and U.S. forces intervening in the area. The large number of PLAAF airfields in the East Sea Fleet area helps the PLANAF in this effort. Besides the use of shore-based facilities, both air services are striving to work jointly together on many levels. First, both air services are training on in-

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<sup>66</sup> Brown, Prueher, and Segal, p. 46.

<sup>67</sup> Ibid., p. 46.

flight refueling and flying missions over the water. Due to the distance between shore-based facilities and Taiwan, the PLA combat aircraft cannot sustain flights long enough to strike effectively into the heart of Taiwan and return to their home base without refueling in-flight. Also, the hesitance of PRC combat aircraft to travel over water severely limits the number of air-strikes or air cover both services can provide to the PLA troops traveling to or on Taiwan. Both air services lack efficient in-flight refueling skills, but they have worked jointly on several occasions to become more proficient.<sup>68</sup> Several attempts between both air services have been made to practice in-flight refueling together, although some were successful, they were not enough to give the majority of pilots any proficiency. Only time will show if this goal may be realized.

The second joint cooperation between the PLAAF and the PLANAF is in the area of air control. Both air services are working together to gain confidence in one another in order to gain air superiority over ROC forces. While few inter-service flights have yet been conducted, both air services understand the need for better cooperation. The more trained PRC pilots conducting exercises in denying the ROC the air, the less practice they would need later. Also, as the PRC tries to acquire an AWACs platform, prior training is necessary its implement its full potential. A large number of joint air missions needs to be conducted before either air service engages in air-to-air combat, but the PLANAF sees its future in that direction.

#### **E. PLAN'S ROLE IN PRC GRAND STRATEGY**

The PRC's ultimate goal is becoming a regional hegemon. The PRC's dependence on foreign nations to provide it with critical national resources, particularly crude oil from the Middle East, and their interference with numerous PRC domestic issues are the main reasons for this quest of hegemony. The PRC feels that as its role in the international arena grows and dependence on foreign nation decreases, then a grand sense of national strength will emerge.<sup>69</sup> The PLAN will eventually force this to happen by pushing the boundaries of the PRC far beyond where they currently stand and becoming the predominant political and military power in the region. In 1991, Vice

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<sup>68</sup> Cole, *The Great Wall at Sea*, p. 147.

<sup>69</sup> Swaine and Tellis, p. 107.

Admiral Cheng Mingshang, vice commander-in-chief of the navy, vocalized his views on the future of the PLAN and how it supports the PRC's grand strategy:

The navy is the tool of the big powers' foreign policy. Compared with the army and air force, which cannot go beyond the national boundaries, an international navy can project its presence far away from home. It can appear in the sea close to the coastlines of potential opponents. While this demonstration of power constitutes a high level of deterrence, it does not provide any formal excuse for the target countries to protest. Such a function of projecting power has made the navy a most active strategic force in peace time, a pillar for foreign policy initiatives and an embodiment of a country's will and power.<sup>70</sup>

Once the PLAN modernization is fully implemented, it will help the PRC achieve its goal of regional hegemony and force the settlement of numerous territorial disputes in the Western Pacific.

Ideally, the PRC hopes the PLAN will play that important role in its grand strategy. However, the current rate of PLAN modernization is only designed to secure the PRC's maritime borders against security threats. With Taiwan the primary security concern, the PLAN is focusing its modernization on forcing Taiwan to reunify and secure the islands around the mainland.

As the PLAN modernizes towards its current goal, it is supporting an active defense against off-shore enemies, namely Taiwan.<sup>71</sup> The PLAN created its current defense strategy based on former PLAN head, General Liu Huaqing. He expressed his concerns over the PRC's inability to defend against its enemy at sea. By using the traditional Maoist ideal of "active defense," General Liu called for decisive action by the PLAN. He called for the PLAN to seek out and attack the enemy on the battleground it chooses and not the other way around. U.S. Navy analyst Bernard Cole feels that active defense appeals to the nature of PLAN strategists. Cole suggests that if the PLAN were to engage in maritime combat today, then active defense will best apply to it. The PLAN

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<sup>70</sup> You, p. 160.

<sup>71</sup> Bernard D. Cole, "The PLA Navy and 'Active Defense,'" in *The People's Liberation Army and China in Transition*, eds. Stephen J. Flanagan and Michael E. Marti, 129-138. (Washington, DC: National Defense University, 2003), p. 138.



would need to rely on mobility, naval commanders with initiative, and effective surprise attacks.<sup>72</sup> The current PLAN training doctrine is practicing just these qualities.

The PRC is implementing active defense by focusing on five maritime interests directly related to securing its borders. The focus of these five items will allow the PRC to control not only its maritime borders, but the territories around them, as well. The five items are:

- 1) ocean islands
- 2) sea-space jurisdiction
- 3) marine resources
- 4) maritime strategic advantage
- 5) strategic sea lanes<sup>73</sup>

Each of these items is currently a challenge for the PLAN. However, the PLAN sees its future flourishing as it modernizes and prepares for future naval operations.

The role of the PLAN in the future of PRC's grand strategy is guaranteed, and the PLAN will have a significant role. Although, with the progress of modernization steady but slow, the PLAN is currently focusing on the security needs of the PRC rather than its political goals of power projection throughout Asia. Within twenty years, the PLAN will have a modern force that may be able to fulfill the political aspirations of Beijing.

## **F. SUMMARY**

The PLAN recognizes that it has weaknesses that will not allow it to take successful aggressive action against Taiwan. Most problems with the PLAN are with its obsolete fleet of surface and amphibious ships, poor maintenance with its maritime aircraft and the lack of appropriate training time. However, the PLAN leadership understands the operational changes needed to make the PLAN into a first-class blue water navy. The help received from Russia has allowed the PLAN to acquire advanced destroyers capable of sinking aircraft carriers, helicopters capable of prosecuting submarines and conducting OTH strikes and submarines quiet enough to evade enemy ASW prosecution. Along with the training of PLAN Marine Corps for amphibious assaults, Taiwan needs to significantly worry about the PLAN modernization. If Taiwan

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<sup>72</sup> Ibid., pp. 130-131.

<sup>73</sup> Cole, *The Great Wall at Sea*, p. 174.

chooses independence, the PLAN doctrine of “active defense” will force Taiwan, and possibly U.S. forces, to fight on the PLAN’s terms. As the PLAN modernizes itself into a blue-water navy, it will be a much more difficult enemy for the United States and ROC to stop.

## **IV. PEOPLE'S LIBERATION ARMY AIR FORCE**

### **A. BACKGROUND**

Due to revolutions in combat, air power now plays a significant role in successful military operations. Through intense study of numerous U.S. military campaigns, the PRC understands that it needs an air force capable of conducting sustained combat operations if it were to defeat the United States or the ROC in combat. However, the PLA Air Force (PLAAF) has operated with obsolete aircraft since the departure of Soviet assistance in the late 1950s. Inferior training doctrine compounds the PLAAF's inferiority by allowing too few flight hours and not enough real world flight training. Throughout most of its history, the PLAAF has been subordinate to the PLA's regular infantry and led by a general officer who was an infantry soldier and not a pilot. Due to the PRC's preoccupation with ground combat, the PLAAF suffered from a lack of budget allocations and was restricted to operating only within the boundaries of a ground campaign. While the PRC was until recently preoccupied with outdated concepts of war and obsolete equipment, the ROC received advanced weapon systems, particularly combat aircraft, trained in defeating the PRC with newer combat tactics, and built up their defenses, with U.S. help, against possible PRC aggression. These constraints meant that the PLAAF languished and became an ineffective force against Taiwan.

In 1991, the revelation of a new way to fight a war dawned upon the PRC leadership during the Persian Gulf War. The world witnessed advanced airpower inflict massive damage on a large force that was primarily concerned with ground combat. After forty years of preparing to trade space for time as the only way for the PLA to win wars, the PRC now believes advanced air power could negate their theory.<sup>74</sup> After intense study of the Persian Gulf War, the PLAAF began a dedicated effort to realize airpower's full potential and negate any technological advantage their enemies, particularly Taiwan, may possess. The plan for PLAAF modernization is designed to indoctrinate PLAAF pilots with intense combat doctrine and allow the training time necessary for success. The

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<sup>74</sup> You, p. 15.

modernization is also dedicated towards replacing older aircraft with newer airframes, both foreign and indigenous, to eradicate ROC air superiority in the Taiwan Strait.

The PLAAF's modernization is primarily concerned with overcoming Taiwan's technological superiority and developing doctrine to conduct joint operations with air, land and sea forces in aggressive action against Taiwan. To aid in this effort, the PLAAF is developing a rapid reaction airborne unit designed to penetrate deep into Taiwanese territory and support follow-on PLA units. An integrated air defense system is also being developed to defeat ROC or U.S. cruise missile or aircraft attack on the mainland. This chapter discusses the progress of modernizing PLAAF aircraft, the efforts to build a comprehensive training doctrine, and the development of its airborne units. The chapter also discusses the development of the PLAAF's air defense forces.

## **B. AIRCRAFT MODERNIZATIONS**

### **1. Fighters**

The majority of PLAAF aircraft are obsolete. Due to political and civil problems in the country, the PRC was unable to develop indigenous aircraft capable of matching the advanced aircraft of Taiwan. This inability to manufacture advanced indigenous aircraft capable of defending the mainland against air attacks was the one of the PRC's biggest security weaknesses. Although initially helpful in the effort to gain advanced aircraft, when the Soviet Union withdrew its military assistance in the late 1950s, the PLAAF was placed in dire straits because it no longer had access to advanced aircraft. Although it received numerous Soviet airframes with their production rights, the political fallout between the two countries did not allow the PRC to receive the technical blueprints for manufacturing them in China.<sup>75</sup> The inability to reverse engineer these aircraft made the PLAAF increasingly ineffective and was quickly outmatched by the ROC Air Force.

Until the Persian Gulf War, the PLAAF did not understand the power an advanced air force has against its enemies. In the aftermath of the 1991 Persian Gulf War, PRC analysts studied the effectiveness of advanced airpower and how it paralyzed the

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<sup>75</sup> Kenneth Allen, Glen Krumel and Jonathan Pollack, *China's Air Force Enters the 21<sup>st</sup> Century* (Santa Monica: RAND, 1999), pp. 74-75.

Iraqi combat and support forces.<sup>76</sup> After the Persian Gulf War, the PRC recognized its combat capabilities were weak and began efforts to convert its air force into one capable of not only providing long-range strikes, but also of providing close air support to its ground troops. The PLAAF is working to retire its older airframes, augment its air fleet with advanced combat aircraft from both indigenous and foreign sources and procure long-range bombers.

The PLAAF currently has 3200 aircraft in its arsenal, most of which are of obsolete Soviet design.<sup>77</sup> The majority of these aircraft are the obsolete J-6s, the Chinese produced MiG-19. Due to its large number, the J-6 is deployed throughout the PRC, but particularly in the airfields across from Taiwan. However, the J-6 provides little defense against the advanced F-16 Falcons of the ROC Air Force. The J-6 has a small combat radius, which does not allow for air operations over Taiwan, and is armed only with short-range guns and infrared missiles that are easily decoyed by flares. Due to their number and the lack of numerous advance aircraft, a large portion of PLAAF resources are used to keep the J-6 fleet operational. This diversion of funds forces the PLAAF to deviate resources from other PLAAF projects. The PLAAF intends to retire all of its J-6 aircraft by the end of the decade in order to devote its resources to modifying better maintained aircraft with newer avionics.

The PLAAF is currently in the process of modernizing existing airframes that have the potential for air combat against Taiwan. The J-7, the Chinese MiG-21, and the indigenously produced J-8 have been modified with advanced avionics and weapons systems. These modifications have been conducted to allow the aircraft to combat any EW threat and provide the PLAAF with an all-weather fighter. The J-7 and J-8 have also been modified to carry the Chinese versions of Soviet air-to-air missiles (AAM). However, due to its older technology and lack of sufficient combat capability, the J-7 and J-8 provide little more than a numerical advantage against ROC forces. Both aircraft have a combat radius of approximately 300nm, but, like the J-6, will provide little help in air

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<sup>76</sup> Paul H.B. Godwin, "The PLA faces the Twenty-First Century," pp. 54-55.

<sup>77</sup> See *Annual Report on the Military Power of the People's Republic of China*, p. 23.

combat against Taiwan.<sup>78</sup> While the modifications provide the PLAAF with a better aircraft, the J-7 and J-8 are still relatively ineffective against the ROC's modern combat aircraft.

The PLAAF recognizes that it cannot establish air superiority over the Taiwan Strait without a fighter capable of competing with the ROC F-16s and the U.S. military jets that may defend Taiwan. In the period following the Persian Gulf War, the PLAAF began research to develop an air superiority fighter, but due to the lack of indigenous technology, the PRC has been unable to develop one. In an effort to gain an air superiority fighter, the PRC negotiated with Russia to buy the Su-27 Flanker.<sup>79</sup> The purchase of the Su-27 will prove to be one of the best decisions for the PLAAF. The Su-27 Flanker is the only fighter in the PLAAF inventory capable of establishing a combat air patrol station over the Taiwan Strait. The majority of the Su-27s are deployed at the airfields near the Taiwan Strait and are capable of launching raids into Taiwan. The Su-27 has a range of 930 miles, can refuel in-flight, and can travel at a maximum speed of Mach 2.5. The Su-27 is usually compared to the U.S. Air Force F-15 Eagle due to its superior maneuverability and advanced avionics capable of firing modern air-to-air weaponry, including long-range AAMs.<sup>80</sup> This fighter will prove an excellent air-to-air platform against the ROC air force if the PLAAF effectively implements it.

Although, the Su-27 augments the PLAAF air-to-air inventory, the PLAAF must overcome several logistical and administrative problems to ensure its effectiveness. First, the SU-27s constitutes only a small percentage of the actual PLAAF inventory. The PRC has yet to acquire all of the contracted seventy-eight Su-27s from Russia.<sup>81</sup> Without the full complement of these Su-27s, and any more negotiated in the future, the PLAAF will not have the aircraft available to replace its retiring obsolete fleet. Also, during the

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<sup>78</sup> Chong-Pin Lin, "The Power Projection Capabilities of the People's Liberation Army," in *Chinese Military Modernization*, eds. C. Dennison Lane, Mark Weisenbloom and Dimon Liu, 100-124 (Washington, DC: American Enterprise Institute, 1996), p. 103.

<sup>79</sup> Dennis J. Blasko, "Evaluating Chinese Military Procurement from Russia," *Joint Forces Quarterly* (Autumn/Winter 1997-98), p. 94.

<sup>80</sup> Shambaugh, *Modernizing China's Military*, pp. 262-263.

<sup>81</sup> Richard D. Fisher, "PLA Air Force Equipment Trends," in *The People's Liberation Army and China in Transition*, eds. Stephen J. Flanagan and Michael E. Marti, 139-175. (Washington, DC: National Defense University, 2003), pp. 152-153.

negotiation for the Su-27s, the Russians agreed to give the PRC the production rights for the aircraft. However, the infrastructure to build the SU-27s, renamed the J-11 for the PLAAF, is not in place. This fact was underscored to the PLAAF when it failed to meet its own production goals. The PLAAF was scheduled to produce 15 J-11s by 2002, but could only produce six.<sup>82</sup> Without the infrastructure to mass produce the Chinese Su-27s quickly for the near term, the rapid acceleration of advanced technology in United States research and development (R&D) will negate the advantage the Su-27 Flanker has in the PLAAF inventory.

Along with the Su-27 Flanker, the PRC is negotiating with Russia to purchase another advanced aircraft with the capabilities to conduct long-range, all-weather engagements for both air and ground combat. The Su-30 MK has many capabilities similar to the Su-27, but is equipped with more advanced avionics, can travel farther, carries more state-of-the-art ordnance, and with modifications has the ability for naval combat. Reportedly, the PLANAF is negotiating with Russia to acquire the modified naval version of the Su-30 armed with anti-ship cruise missiles (ASCM), specifically designing the jet for anti-surface warfare.<sup>83</sup> This is due to the PLANAF not yet receiving the Su-27 Flankers for its own inventory. Russia signed a contract with the PRC in 1999 to deliver forty Su-30s, along with Russian help to produce the aircraft in the PRC indigenously. Although the Russians promised delivery, like the Su-27s, the actual number of Su-30s delivered is so far minimal. Also, the necessary infrastructure to produce them is not available. Unless the PRC is capable of producing this aircraft, like the Su-27, the advantage of this advanced aircraft will quickly disappear.

The PLAAF cannot continue to rely on foreign acquisitions to augment its inventory. To aid in this effort, the PLAAF is developing the F-10, or J-10, fighter. The F-10 is designated an air superiority fighter and will reportedly be used over the Taiwan Strait against the ROC Air Force. While producing this aircraft will be a tremendous feat for the PRC, the project has been constantly delayed due to research problems and an inability to procure the necessary armament. If the PLAAF continues to

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<sup>82</sup> Shambaugh, *Modernizing China's Military*, p. 263.

<sup>83</sup> See *Annual Report on the Military Power of the People's Republic of China*, p. 23.

commit resources to the project, the fighter will not only be decades behind the technologically advanced aircraft in the ROC inventory, but the PLAAF reliance on foreign military equipment will continue.

## **2. Bombers**

The PLAAF received its first bombers from the Soviet Union during the 1950s. After the PLAAF began indigenous production of the bombers, they were re-designated as the B-5, modeled after the Il-28 Beagle, and the B-6, modeled after the Tu-16 Badger. Since the 1950s, the PLAAF has been unable to produce a bomber capable of effectively augmenting their inventory. The result was that the PLAAF bomber inventory became ineffective and unfit for combat over Taiwan. The B-5 is rapidly being phased out of the PLAAF inventory due to its obsolete design and the inability of the PLAAF to modify the aircraft for further operations. The B-6, however, has been successfully modified several times and remains an operational platform. One main reason the PRC wants to keep the B-6 operational is that it is the only PLAAF bomber capable of carrying a nuclear payload. In order to keep the aircraft in its active inventory, the PRC has also designated the B-6 as a PLANAF bomber. The difference between the two bombers is that the PLANAF bomber is modified to carry ASCMs, while the PLAAF is modified to carry air-launched cruise missiles (ALCM).<sup>84</sup> Due to its poor operational range, roughly 1000nm, and the PLAAF's inability to provide the bomber with fighter protection due to its current combat doctrine, these bombers would prove insignificant in the battle over Taiwan.

The PRC studied the Persian Gulf War intently, but the most recent war in Iraq, Operation IRAQI FREEDOM, showed the PRC the importance of a long-range bomber capability. Peng Guangqian, a military analyst at the PRC's Academy of Military Sciences, paid particularly close attention to the use of U.S. bombers in the war. He saw the advantage a long-range bomber had on not only striking deep into Iraqi territory, but its ability to conduct multiple strikes along its flight path.<sup>85</sup> This study helped renew PRC thoughts on the need for an advanced long-range bomber.

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<sup>84</sup> Allen, "PLA Air Force Operations and Modernizations," pp. 218-219.

<sup>85</sup> "PRC Military Science Experts Comment on US Military Strategy in Iraq War," *Shanghai Guoji Zhanwang*, FBIS-CPP-2003-0625-0000205, 15 June 2003, p. 4.



Following the example of U.S. military forces working to develop the Joint Strike Fighter, the PLAAF and PLANAF are working jointly to design and acquire both medium and long-range bombers. The PLANAF is reportedly developing an all-weather, supersonic, medium-range fighter bomber designed for anti-surface warfare (ASUW), but still capable of conducting air strikes over Taiwan for the PLAAF.<sup>86</sup> The FB-7 is expected to augment both air services strike capability with better avionics, radars and weapons. However, like every other indigenous project in the PRC, the research and production of the bomber is behind schedule. The FB-7 will not affect the air over the Taiwan Strait for at least the next two decades when it was scheduled for completion in this decade. In order to augment their long-range bomber capability, the PRC is negotiating with Russia to obtain the Tu-22M Backfire.<sup>87</sup> While the Tu-22M is able to carry a payload over 22 tons, it lacks the capability for in-flight refueling due to prior international agreements. This will force the Tu-22M to only carry out limited strikes on Taiwan. Although the sale of the Tu-22M has yet to happen, originally due to Russian worries over strikes into their country, the recent leasing of four Tu-22Ms to India will force the sale of the bomber to the PRC.<sup>88</sup>

### **3. Transports**

Compared to the actual size of the PLA--nearly two million troops--the PLAAF strategic transport capability is miniscule. From its inception until the mid-1990s, the PLAAF has never possessed enough transport aircraft capable of doing the necessary work. Not only could the PLAAF transport fleet not transfer enough airborne divisions or infantry soldiers to Taiwan in case of an invasion, but it could not fly far into the western parts of China for a sustained period of time.<sup>89</sup> Unlike the rest of the PLAAF inventory, the transports, although obsolete, are being modified for continued use. Also, the PLAAF is acquiring foreign transports in an effort to augment its transport capability. The PLAAF transport fleet comprises of twenty Il-76MDs, twenty-five Y-8/An-12s and forty-

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<sup>86</sup> See *Annual Report on the Military Power of the People's Republic of China*, p. 23.

<sup>87</sup> Shambaugh, *Modernizing China's Military*, p. 265.

<sup>88</sup> Fisher, "PLA Air Force Equipment Trends," p. 154.

<sup>89</sup> Allen, "PLA Air Force Operations and Modernizations," p. 219.

two Y-7/An-28s, as well as two C-130L, which are operated by a civilian company.<sup>90</sup> These aircraft are being modified for continued operation and receiving newer engines, as well as improved avionics. While the PLAAF is improving its inventory, its transport fleet will continue to be ineffective for quite some time. The PLAAF will need to commit a significant amount of resources not only to acquire foreign transports, but also to build a domestic fleet. The PRC does not have enough economic resources to devote to building a transport fleet, as well as continue to research and develop its other modernization programs.

#### **4. Special Mission Aircraft**

The U.S. military actions in the Middle East proved to the PRC that conventional aircraft alone cannot win air superiority or the battle. The PRC saw that a technologically inferior enemy like Iraq was defeated by revolutionary weaponry. This new weaponry allowed the U.S. and Coalition forces to be victorious over an enemy that was embedded in its own territory and win with minimal manpower. The use of unmanned aerial vehicles, air-traffic control aircraft and advanced intelligence gathering platforms will prove essential against a more technologically advanced enemy like Taiwan.

The use of unmanned aerial vehicles (UAV) in combat has proven to be one of the greatest technological advancements for a military. UAVs first proved their worth to the U.S. military during Operation ENDURING FREEDOM. The ability for UAVs to deliver ordnance on a target, as well as provide intelligence information without risking the life of a human being is extremely beneficial. These advantages are why the PLAAF is investing considerable resources into the development of UAVs. According to the Department of Defense, the PLAAF is developing UAVs not only for electronic warfare (EW), but continued surveillance along the Taiwan coast and future combat operations.<sup>91</sup> Since the ROC Air Force does not possess this capability, the use of UAVs in a future invasion of Taiwan will prove to be a tremendous advantage for the PLAAF.

Another advantage an UAV will provide the PRC is command, control and battle management (C2BM) during an operation. C2BM provides unprecedented intelligence

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<sup>90</sup> Fisher, "PLA Air Force Equipment Trends," pp. 161-162.

<sup>91</sup> See *Annual Report on the Military Power of the People's Republic of China*, p. 23.

information to the PLA's C2. While analyzing Operation IRAQI FREEDOM, the CMC understood the effectiveness of U.S. systems like Global Hawk and Predator UAVs.<sup>92</sup> These UAV systems were able to provide U.S. and coalition forces real time information on the locations of Iraqi forces. With the location of enemy forces known, the U.S. and coalition forces were able to control the movement of forces with greater effectiveness. This C2BM ability provided U.S. and coalition forces with information that the PRC would like to harness for its forces. If the PLAAF is able to develop UAV systems like the Global Hawk, then operations against Taiwan will sway to the PRC's advantage.

As the PLAAF modernizes its inventory, the acquisition of an airborne-early-warning and control system (AWAC) platform will give the PRC a strategic advantage over Taiwan. The PRC goal to acquire an AWACs has proven to be one of the controversial items for the United States. The most controversial aircraft acquisition for the PLAAF is its desire for an AWACs platform. An AWACs platform will provide the PLAAF with the capability of airborne control and the ability to provide C4ISR against ROC forces. Due to its lack of an AWACs platform, the PLAAF is limited to within 200-300nm off the coast of China, the operational range of ground-based radar.<sup>93</sup> This range is far shorter than the operation ranges of ROC or U.S. aircraft and limits the ability for land-based aircraft to conduct strikes on Taiwan. The Israelis originally agreed to sell the PLAAF an AWACs platform, the Elta Phalcon, but United States pressure forced Israel to back away from the deal.

Once the Israelis decided not to go through with their deal, the PRC looked toward Russia once again for its aviation needs. The Russians have agreed to sell the PRC four A-50E AWACs. The A-50E is the most advanced Russian AWACS systems and boasts an operating system capable of tracking three hundred targets at once, command twelve friendly fighters and operate at ranges up to 400nm.<sup>94</sup> This AWACs system will provide the PLAAF with four hours of on station time and the ability to travel

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<sup>92</sup> *Shanghai Guoji Zhanwang*, p. 6.

<sup>93</sup> Godwin, "The PLA faces the Twenty-First Century," p. 58.

<sup>94</sup> Fisher, "PLA Air Force Equipment Trends," pp. 158-159.

a distance of over 500nm. The PRC has yet to receive the AWACs from Russia, but it may in the near future.

In addition to foreign acquisitions, the PLAAF is working to develop indigenous AWACs technology, based on British and Russian technology, but currently it has not gone past the conceptual phase. The new indigenous AWACs will be part of the old Y-8 Skymaster transport frame, but will carry newer technology.<sup>95</sup> As with its current weapon systems, the PLAAF will most likely only gain AWACs capabilities by foreign purchases.

Intelligence gathering in combat is essential to victory. Current PLAAF intelligence platforms are weak and lack the necessary stealth capabilities to gather proper intelligence. However, the PLAAF has been involved with several ways, both air and land, to augment its C4ISR capability other than through the use of an AWACs platform. For the PRC, the more intelligence gathered on Taiwan, the smoother combat operations against them will be later. The PRC's intelligence goals are to collect radio and satellite communicant (SATCOM) signals coming from the PRC contested areas, especially Taiwan.<sup>96</sup>

The PRC is developing means to not only gather intelligence from Taiwan, but ensure ways to deny U.S. and ROC forces intelligence on how the PRC is operating. The PLAAF is developing air platforms to help augment this capability, but it is far from fully accomplishing this goal. Reportedly, the PLAAF has modified four Russian Tu-154M aircraft for electronic intelligence (ELINT) in an effort to gain better intelligence on Taiwan and deny ROC forces intelligence information on PLA movements.<sup>97</sup> The Tu-154 aircraft also reportedly have ground mapping capabilities able to record ROC defensive emplacements on Taiwan. With these modified ELINT aircraft, the PRC should be able to gather intelligence over Taiwan that was not able to gather before.

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<sup>95</sup> Ibid., p. 159.

<sup>96</sup> Mark A. Stokes, *Chinese Strategic Modernization: Implications for the United States* (Carlisle: Strategic Studies Institute, 1999), pp. 32-33.

<sup>97</sup> Fisher, "PLA Air Force Equipment Trends," pp. 159-160.

## **5. Advanced Munitions**

In the studies conducted by the CMC, precision-guided munitions (PGM) have played a more prevalent role in modern combat. The CMC was amazed at the number of PGMs used from Operation DESERT STORM to Operation IRAQI FREEDOM. In 1991, the use of PGMs accounted for about ten percent of the ordnance used in the war, while in 2003, PGMs accounted for over eighty percent of the ordnance used.<sup>98</sup> This shift from “dumb” bombs to “smart” bombs showed the PRC that the mainland can be attack from almost anywhere.

The type of PGMs the CMC began intensive research on were those like the U.S. GBU-28/B “smart” gravity bomb. The PRC studied the GBU-28 intently when the U.S. Air Force accidentally bombed the Chinese Embassy in Belgrade during the air campaign in Kosovo.<sup>99</sup> Through its research, the CMC began researching bombs that could be satellite-guided, TV-guided and global positioning system (GPS)-guided, and capable of delivering 1000-2500 pound bombs with tremendous accuracy. Also, the CMC began researching bombs with electromagnetic pulse (EMP) capability for use against computer networks, electronic equipment and data transmission lines.<sup>100</sup> This research shows the PRC is preparing for future combat against an enemy that relies on advanced technology for its defense. The intended targets for these advanced weapons are U.S. and ROC forces.

### **C. AIR DOCTRINES**

Although the PLAAF is retiring its obsolete aircraft and integrating advanced foreign and indigenous aircraft into its inventory, serious doctrinal problems need to be overcome in order for them to truly become a modern air force. As the advanced aircraft are implemented, the PLAAF is failing to properly change its obsolete doctrines that do not allow its pilots the necessary training needed for advanced operational flying. As the PLAAF modernizes and studies the air campaigns of U.S. forces, several doctrinal issues have arisen for the PLAAF. The doctrinal issues that directly affect the future of PLAAF

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<sup>98</sup> *Shanghai Guoji Zhanwang*, p. 7.

<sup>99</sup> Shambaugh, *Modernizing China's Military*, p. 86.

<sup>100</sup> *Ibid.*

operations are: the amount of flight time per aircraft, in-flight refueling, and the ability for pilots to travel over water.

The biggest detriment to the training of PLAAF pilots is the amount of flight time each pilot receives for their assigned aircraft. Although pilot training has improved greatly over the past twenty years, the amount of flight time received is still well under both ROC and U.S. air forces. The average PLAAF pilot trains for only 130 hours a year, while U.S. pilots train for 225 hours and ROC pilots train for nearly 180 hours a year.<sup>101</sup> When a PLAAF pilot is flying much of the flight is concerned with practicing basic navigational skills, rather than operational flying skills needed to win during air combat maneuvering (ACM). Also, most of these training flights are conducted under daytime visual flight rules (VFR) due to their hazardous nature.

While 130 hours is a tremendous increase for a PLAAF pilot, this increase only affects the pilots of the less advanced airframes. The pilots of the new Su-27s only receive about 100 hours of flight time per year under extremely constrained conditions.<sup>102</sup> The Su-27s pilots receive less flight time because the PRC leadership is worried about damage to its newest fighter, the limited amount of supplies for the aircraft and possible defection by its pilots. Along with the small amount of flight time, PLAAF pilots rarely train with live ammunition in flight. Continuously training of PLAAF pilots in unreal conditions does not allow them to prepare for actual aerial combat in the future. Unless the PLAAF leadership changes its combat doctrine, the PLAAF pilots will not be able to compete with ROC or U.S. pilots.

The inability of the majority of PLAAF pilots to refuel in-flight significantly limits the operational range of the PLAAF and limits their ability to conduct sustained combat operations.<sup>103</sup> In an effort to correct this problem, the PLAAF has conducted several in-flight refueling drills for its squadrons, but with minimal results. Not only is the PLAAF training its pilots, but it is also converting bombers for refueling training. The PLAAF converted a B-6 Badger bomber to an aerial tanker in an effort to aid in this

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<sup>101</sup> Brown, Prueher, and Segal, p. 50.

<sup>102</sup> Shambaugh, *Modernizing China's Military*, p. 265.

<sup>103</sup> Godwin, "From Continent to Periphery," p. 216.

capability. The last successful in-flight refueling for the PLAAF took place over the South China in April 2000.<sup>104</sup> This inability of in-flight refueling forces the PLAAF to station the majority of its combat aircraft on airbases in close proximity to Taiwan. The placement of PLAAF aircraft near Taiwan shows the significance the PRC places on air power against Taiwan, but without in-flight refueling, it cannot sustain long-term combat operations.

Another training deficiency for the PLAAF is its reluctance to fly over water. The PLAAF leadership believes training flights over the water are inherently more dangerous and need to be conducted differently than flights over land.<sup>105</sup> The lack of over-water flight training reduces the PLAAF's ability to project its power over ROC forces, gain air superiority over the Taiwan Strait, and conduct attacks on Taiwan. In an effort to improve its efficiency, the PLAAF has conducted limited daytime flights over the water while patrolling the Taiwan Strait. These limited flights are a solid effort, but they are nowhere near the amount of experience PLAAF pilots need. ROC pilots routinely train in over-water flights to simulate air combat against PLAAF pilots. If the PLAAF does not train its pilots more sufficiently in over-water flights, ROC forces will maintain air superiority over the Taiwan Strait.

#### **D. AIRBORNE UNIT**

The 15<sup>th</sup> Airborne Corps is the PLA's only airborne unit. The 15<sup>th</sup> Corps is unlike the rest of the world's airborne units because the PLAAF is in command of this unit and, if necessary, it can come under direct control of the Central Military Commission (CMC). The 15<sup>th</sup> Corps roots go back to Deng Xiaoping's 2<sup>nd</sup> Field Army during the Korean War. In Korea, the predecessors of the 15<sup>th</sup> Corps gained a reputation for combat toughness and were designated by Mao Zedong to form their own unit in the 1960s.<sup>106</sup> Mao's purpose for the 15<sup>th</sup> Corps was as a rapid reaction force, but not until the late 1990s did the PRC begin any preparations to conduct such operations. While the PRC has grand

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<sup>104</sup> See *Annual Report on the Military Power of the People's Republic of China*, p. 23.

<sup>105</sup> Allen, Krumel and Pollack, p. 206.

<sup>106</sup> You, p. 143.

plans for the 15<sup>th</sup> Corps, logistical and doctrinal problems force any PRC airborne operation to be extremely limited.

The 15<sup>th</sup> Airborne Corps currently consists of 30,000 troops (three divisions) with possibly two new divisions being formed.<sup>107</sup> Even though the 15<sup>th</sup> Corps is small compared to the rest of the PLA, the PLAAF does not have the strategic airlift capability to transport these paratroopers for an operation. The inability of the PLAAF to transport the 15<sup>th</sup> Corps is the biggest restriction to a successful airborne operation against Taiwan. To successfully conduct an operation in Taiwan, the PLAAF would need to transport more than the fifteen thousand paratroopers, ten thousand more than they can transport now. While five thousand paratroopers may be able to establish control of a ROC contested airfield or port facility, they can only do it for a short period of time before being overrun.<sup>108</sup> As noted earlier, even though the PLAAF is modernizing its transport inventory, it will not be ready for quite some time. Without a massive transport fleet, the 15<sup>th</sup> Corps will not pose a significant problem to Taiwan.

Despite significant logistical problems, the doctrine of the 15<sup>th</sup> Corps also hinders successful operations. Although the PRC has lofty expectations for the 15<sup>th</sup> Corps in the 21<sup>st</sup> century--particularly the capability to airdrop 100,000 paratroopers early this century-- several doctrinal issues need to be addressed.<sup>109</sup> First, the 15<sup>th</sup> Corps does not have the modern equipment necessary for night-time airborne drops. A night-time drop on Taiwan would have the best chance for success. The use of night vision goggles (NVG) allows airborne commanders to not only see the approaching drop zone (DZ), but allows for safer and more efficient movement at night. Also, the 15<sup>th</sup> Corps is severely limited by its inability to operate in inclement weather.<sup>110</sup> Without the equipment necessary to airdrop into a contested DZ during poor weather, the 15<sup>th</sup> Corps chances of success drop dramatically. If the 15<sup>th</sup> Corps continues to limit operations only to daylight and fair weather operations, then its effectiveness as a fighting force will be negated.

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<sup>107</sup> Fisher, "PLA Air Force Equipment Trends," p. 164.

<sup>108</sup> O'Hanlon, "Why China Cannot Conquer Taiwan," pp. 69-70.

<sup>109</sup> Fisher, "PLA Air Force Equipment Trends," p. 164.

<sup>110</sup> Allen, "PLA Air Force Operations and Modernizations," p. 199.



The second problem of the 15<sup>th</sup> Corps is its lack of doctrinal training. The PRC wants the 15<sup>th</sup> Corps to play a prominent role in an invasion of Taiwan. However, the 15<sup>th</sup> Corps has failed to instill in its smaller units the basic doctrinal procedures of simple airborne tactics. Although the 15<sup>th</sup> Corps has studied extensively numerous airborne campaigns of past wars, it has failed to fully implement the lessons learned from those campaigns. The 15<sup>th</sup> Corps biggest failure is its inability to effectively work jointly with another PRC force. The use of the U.S. 101<sup>st</sup> Airborne Division during Operation IRAQI FREEDOM is currently under PRC review, but which lessons will be implemented is still unknown.<sup>111</sup> The PRC is particularly concerned with the joint operations between the 101<sup>st</sup> Airborne and the ground forces around Baghdad. The CMC leadership is amazed at the success of the 101<sup>st</sup> Airborne taking over objectives in Northern Iraq, then traveling south in time to combine its efforts with the 3<sup>rd</sup> Mechanized Infantry Division around Baghdad.

To augment their airborne capability, the PLAAF has requested the help from Russian Airborne forces to train the 15<sup>th</sup> Corps. The Russian advisors are training the 15<sup>th</sup> Corps not only to mobilize it into an effective rapid reaction force, but also to work jointly with the rest of the PLA's combat arms. As its training progresses, the Russian advisors are using training scenarios for the 15<sup>th</sup> Corps that have significant overtones of an operation against Taiwan. Due to the large number of PLAAF paratroopers needed for an airborne invasion of Taiwan, the Russian advisors are slowly preparing the 15<sup>th</sup> Corps for such an operation.<sup>112</sup> With the help of Russian advisors, the 15<sup>th</sup> Corps should be able to airdrop a division of paratroopers, with light tanks and self-propelled guns, and operate as an independent force. However, the training process for the 15<sup>th</sup> Corps is slow and cumbersome and will not show significant results for quite some time.

#### **E. AIR DEFENSES**

A distinct branch of the PLAAF's combat capability is its air defenses. Recent actions by the PLAAF have shown it committing significant resources to modernizing air defenses. The PLAAF divides its air defenses into three branches: surface-to-air missiles

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<sup>111</sup> *Shanghai Guoji Zhanwang*, p. 5.

<sup>112</sup> You, p. 145.

(SAM), anti-aircraft artillery (AAA) and radar troops.<sup>113</sup> Each branch is designed defeat attacks against the mainland, but the main purpose behind modernizing the PLAAF air defense capability is preparing for operations against Taiwan. The PRC understands its air defense capability is generations behind Taiwan's and U.S. capabilities, but wants to ensure its future success against attacks. In preparation, the PLAAF is working to create a coherent integrated air defense system (IADS) to combat this possible future threat.

The first step towards a coherent IADS is SAMs. As with much of the PLA's inventory, the SAMs in the PLAAF are obsolete, but a few have been modified for extended service. According to PLAAF doctrine, SAMs are designed to work jointly with PLA infantry. As the PLA infantry make a forward advance, SAMs are used against enemy attack aircraft or missile attacks.<sup>114</sup> There are several types of SAMs in the current PLAAF inventory. These SAM systems range from shoulder-fired, fixed and mobile to radio and radar homing missiles, but most are obsolete and cannot defeat ROC attacks.

In an effort to modernize its SAMs systems, the PLAAF has purchased from Russia numerous SAM systems designed to destroy ROC attack aircraft, as well as their ISR capability. The most advanced SAM purchased from Russia is the SA-10. The SA-10 compares to the U.S. Patriot system in its capability. The SA-10 is designed to destroy incoming ROC cruise missiles and the majority of PRC SA-10s batteries are located along the Taiwan Strait. Also, the PLAAF has developed an advanced indigenous SAM based on the SA-10 and is currently deploying this missile along the coast of the Taiwan Strait, as well.<sup>115</sup> More advanced SAMs, with advanced radar guidance and faster speeds, are quickly being tested and deployed along the Taiwan Strait in defense against Taiwan.

The most significant SAM system being developed by the PLAAF is based on anti-radiation missile technology. The PRC received numerous missiles from Israel with this technology and its development could be detrimental to ROC and U.S. forces. The two systems in development, the FT-2000 and FT-2000A SAM systems, are designed to destroy AWACs and radio-emitting platforms.<sup>116</sup> The sole purpose of these missiles is to

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<sup>113</sup> Allen, "PLA Air Force Operations and Modernizations," p. 223.

<sup>114</sup> You, pp. 141-142.

<sup>115</sup> Shambaugh, *Modernizing China's Military*, pp. 256-257.

<sup>116</sup> See *Annual Report on the Military Power of the People's Republic of China*, p. 30.

destroy ROC or U.S. aircraft patrolling the Taiwan Strait on C4ISR missions against the PRC. Although both systems are still in the conceptual phase, the amount of resources committed to their development shows how important it is to the defense of the PRC against ROC attacks.

The next branch of the PLAAF's IADS is AAA. AAA units will continue to play a large part of the IADS until the SAMs systems are fully modernized. The PLAAF still considers AAA an effective weapon against low-level attack aircraft and transports. For this reason, a large number of AAA units are still active along the coast of the Taiwan Strait in case of ROC attacks. The AAA units along the coast are modified with advanced fire control systems allowing for a better rapid response capability and radar guidance. However, as the more advanced SAM systems become fully implemented into the IADS, the AAA units will start to be decommissioned.<sup>117</sup> Fortunately for Taiwan, the AAA branch of IADS will remain active for some time.

The last branch in the IADS is the units designed for radar control. The PLAAF has developed and deployed numerous radars designed to conduct surveillance on Taiwan, as well as participate in EW. The PLAAF deployed both 2-D and 3-D radars that employ numerous electronic counter measures (ECM) capabilities against enemy attack aircraft.<sup>118</sup> Without triggering enemy aircraft, PLAAF radar stations will not be subject to counterattack when the radar stations target the aircraft for prosecution. These deployed radars are limited by the number of targets they can track and the range of the radars, but they are plentiful enough throughout the area to make these operational limits minimal.

In an effort to augment its radar capability, the PLA is developing numerous radars designed for longer range and higher altitudes. The biggest conceptual development in this effort is a phased array radar. This radar will allow the PLAAF to focus high powered radar beams in a specific direction to achieve longer ranges for the tracking of ROC targets. The PLAAF is also using this technology to defeat U.S. stealth aircraft. This radar concept is passive-coherent detection. The radar is designed to detect disturbances in television broadcast signals and radar emissions in the hopes to detect

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<sup>117</sup> You, pp. 141-142.

<sup>118</sup> Fisher, "PLA Air Force Equipment Trends," p. 165.

stealth aircraft.<sup>119</sup> Like the developmental SAM systems, these new radar systems will allow the PLAAF not only to effectively track United States and ROC aircraft, but also to provide early warning information for PLAAF attack aircraft.

## **F. SUMMARY**

The PLAAF is unable to conduct a successful attack on Taiwan with its current inventory. Current PLAAF doctrine does not allow its pilots to train for sustain air operations or allow it to gain air superiority over the Taiwan Strait. However, the modernization programs employed by the PLAAF are slowly eradicating these deficiencies. Through intense study of the U.S. air campaigns in the Middle East and Eastern Europe, the PLAAF realizes the potential a modernized air force can give it. The few combat aircraft purchased from Russia has allowed the PLAAF the chance to gain air superiority over the Taiwan Strait, but there are not enough aircraft to sustain it.

In order to maintain that superiority, the PLAAF needs to correct the deficiencies of its air doctrines. The PLAAF is slowly training its forces in effective combat formations, in-flight refueling and sustained operations over the water, but these doctrines take some time to implement effectively. Also, the slow advancement of the PLAAF's transport fleet will not allow the 15<sup>th</sup> Airborne Corps to see its full potential for years to come. If the PRC engages its forces in an operation against Taiwan, then the IADS will allow the mainland to defend itself against counterattack from ROC or U.S. forces once the advanced SAM systems are fully integrated. These PLAAF modernizations are slow, but, once fully implemented, the PLAAF will become an effective fighting force.

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<sup>119</sup> Ibid., pp. 165-166.

## **V. PEOPLE'S LIBERATION ARMY SECOND ARTILLERY CORPS**

### **A. BACKGROUND**

The PRC's goal is to coerce Taiwan's reunification with the mainland. A modern strategic missile force (SMF) is one of the PRC's best tools for success. In an effort to reunify Taiwan, the Second Artillery Corps was officially formed in the 1966. When the Second Artillery Corps was formed, its original intent was for it to be an extension of the PLA's artillery units.<sup>120</sup> Throughout its forty-year history, the SMF evolved to display the PRC's might in the nuclear world. Unlike the rest of the services in the PLA, the Second Artillery Corps is the most modern unit in the PLA. This is so for two reasons. First, the PRC expects that the SMF will be one of its most effective weapons against Taiwan in the coming years. In 1985, as Deng Xiaoping called for a reduction in troop strength throughout the PLA, the SMF not only remained untouched, but also grew in both personnel and budget.<sup>121</sup> Second, the PRC wants a modern missile force to deter the only military force capable of effectively protecting Taiwan, the United States. The increase in the Second Artillery Corps stature shows the importance the CMC attaches to its missile forces and gives a glimpse of its future use in deterring Taiwan from declaring independence and coercing it to accept reunification.<sup>122</sup>

Since its inception, the SMF has maintained both conventional and nuclear missiles. The exact number of missiles in the PRC's inventory is unknown, but reports show a drastic increase in the quantitative and qualitative nature of these missiles. Although the number of nuclear missiles in the PRC is growing, PRC policy states it will not use a nuclear weapon first against any of its enemies. However, according to the 2003 Department of Defense report on PRC military strength, PRC strategists are

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<sup>120</sup> Shambaugh, *Modernizing China's Military*, p. 166.

<sup>121</sup> You, p. 85.

<sup>122</sup> Mark A. Stokes, "Chinese Ballistic Missile Forces in the Age of Global Missile Defense: Challenges and Responses," in *China's Growing Military Power: Perspectives on Security, Ballistic Missiles and Conventional Capabilities*, eds. Andrew Scobell and Larry M. Wortzel, 107-167 (Carlisle: Strategic Studies Institute, 2002), pp. 109-110.

reconsidering revoking its “no first use” pledge against U.S. forces in the area.<sup>123</sup> This reconsideration will no doubt affect Taiwan and foreign forces in the event of aggression action by the PRC.

As the Second Artillery Corps continues to modernize itself with the newer missiles designed for longer ranges and carry a variety of payloads, the United States and the ROC will need to pay closer attention to the growth of the PRC’s SMF. The PRC is stockpiling hundreds of short-range missiles near the Taiwan Strait in an effort to coerce a reunification.<sup>124</sup> These missiles do not include the thousands of missiles, both conventional and nuclear, the PRC has dedicated to stopping U.S. involvement in the defense of Taiwan. In effort to counter this PRC nuclear and short-range missile capability, the United States is developing a ballistic missile defense (BMD) capability. The intent of BMD is to stop incoming missile attacks from the PRC on Taiwan and military sites throughout the western Pacific. The establishment of a BMD system has not only strategic implications, but diplomatic ones as well.

This chapter discusses the types of missiles, both conventional and nuclear, the PRC has in its inventory and the efforts taken by the PRC to keep its SMF modernized. Also, this chapter discusses the ramifications a U.S. BMD system has for Taiwan and the PRC.

## **B. CONVENTIONAL AND NUCLEAR MISSILES**

The increase in the number of SMF missiles is primarily concerned with deterring the United States from getting involved in the defense of Taiwan. The PRC is preparing the SMF for U.S. involvement in Taiwan during reunification operations. In order to deter U.S. military forces in the area, the PRC is relying on its missiles to effectively engage ROC defenses, bypass U.S. missile defenses, and possibly deter the United States from even coming to Taiwan’s aid. Even though the United States and the ROC’s militaries are qualitatively better, the CMC is assured the SMF is capable of defeating these forces in combat. To ensure this in combat, the SMF is focusing its missile modernization to ensure survivability during launch procedures and engagements, the

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<sup>123</sup> See *Annual Report on the Military Power of the People’s Republic of China*, p. 31.

<sup>124</sup> Brown, Prueher and Segal, p. 37.

ability to strike targets at longer ranges, and ensure greater accuracy after launch.<sup>125</sup> Also, the PRC is modernizing its inventory with newer missiles with advanced technology designed to strike deeper and more accurately into Taiwan and the United States.

### **1. Short and Medium-Range Ballistic Missiles**

The deployment and pat use of short and medium-range ballistic missiles is the PRC's primary military tool used to coerce Taiwan's reunification.<sup>126</sup> Since missiles are relatively inexpensive and growing rapidly in technology, the PRC is able to deploy hundreds of missiles along the Taiwan Strait to make the ROC understand how committed the PRC is to reunification. During several times in its history, the PRC has launched missiles at and near Taiwan, most recently in 1996, to remind the ROC it has not wavered from this position. Even though the PRC has neglected its conventional short and medium-range missile capability in the past, the PRC more recently has emphasized an increase of advanced short and medium-range missiles to target Taiwan. Since a nuclear strike is not an option on Taiwan, the payloads of conventional missiles allow not only for a large quantity, but allow for joint operations with approaching PLA infantry units on Taiwan.<sup>127</sup>

According to Chinese doctrine, the employment of short-range ballistic missiles (SRBM) in combat not only allows for surprise, but also for disarming first strikes on Taiwan in order to gain the initiative during the initial phases of combat.<sup>128</sup> Currently, the PRC has deployed 350-400 SRBMs across from Taiwan, and the number is expected to rise to approximately to 600 by 2010.<sup>129</sup> As this missile inventory grows, so does the technology of their systems. The two SRBMs currently operational in the Second Artillery Corps inventory, the DF-15 and the DF-11, have both been modified with advanced fire control systems for continued service against Taiwan.

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<sup>125</sup> You, p. 116.

<sup>126</sup> Stokes, "Chinese Ballistic Missile Forces in the Age of Global Missile Defense: Challenges and Responses," p. 114.

<sup>127</sup> You, pp. 98-100.

<sup>128</sup> Michael Pillsbury, *Chinese Military Strategy toward the U.S.: A View from Open Sources*, 2 November 2001. [www.uscc.gov/strat.pdf](http://www.uscc.gov/strat.pdf). 20 June 2003.

<sup>129</sup> Brown, Prueher and Segal, p. 53.

**a. DF-15**

The DF-15, or M-9, entered the PLA inventory in 1995 and has quickly become the backbone of the PLA's SRBMs. The DF-15 is a mobile, solid-fueled SRBM that has a range of 375nm and a circular error probability (CEP) of 100-meters. When designing the DF-15, the PRC recognized that a mobile missile could be moved easily from different locations and hidden from U.S. satellite or aerial reconnaissance aircraft.<sup>130</sup> The PRC received the idea of a mobile SRBM from Iraqi forces during the Persian Gulf War. The U.S. and coalition forces had a difficult time locating and destroying the Iraqi mobile SCUD missiles and Beijing saw that this would be advantageous for them against the ROC and United States in the future.

The DF-15 quickly came to prominence during the PRC military exercises off Taiwan during the Taiwan Strait crisis of 1995-1996. During that time, the PRC launched two sorties of missiles towards Taiwan. In July 1995, the PRC fired six DF-15 SRBMs during a "defensive" missile employment against the ROC. Then, in March 1996, the PRC launched four more DF-15 SRBMs off the coast of Taiwan to remind the ROC of the "one China" policy.<sup>131</sup> During the time between these launches the guidance systems in the DF-15 were greatly improved. The DF-15s were provided with a strap-down inertial navigation system (INS) designed to launch the missile on a predetermined flight plan other than launched in one direction as before.<sup>132</sup> The Chinese INS system onboard the DF-15 allowed a higher degree of accuracy that the PRC did not possess before. The PRC is reportedly developing a DF-15 capable of longer ranges possibly equipped with a Chinese GPS version.<sup>133</sup> The GPS system will allow the DF-15 to be even more accurate after launch. With a large number of DF-15s opposite Taiwan and its short launch cycle (six to seven minutes), the missile can force a debilitating attack on Taiwan.

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<sup>130</sup> Paul Bracken, *Fire in the East: The Rise of Asian Military Power and the Second Nuclear Age* (New York: Harper Collins Publishers, 1999), p. 56.

<sup>131</sup> Porch, pp. 19-20.

<sup>132</sup> Bracken, p. 57.

<sup>133</sup> Shambaugh, *Modernizing China's Military*, p. 281.



Another issue with the DF-15 off the coast of Taiwan is its detachable warhead. The detached warhead can change its trajectory in-flight and follow a different path than the actual missile. The DF-15s warhead separation will inevitably ensure greater targeting difficulty by ROC or U.S. forces. Another issue with the DF-15 warhead is the variety of payloads it can carry. According to the 1999 *U.S. National Security and Military/Commercial Concerns with the People's Republic of China* (also known as the Cox Report) report, the PRC can outfit the DF-15 with nuclear warheads or a neutron bomb.<sup>134</sup> While the use of a neutron bomb on Taiwan is highly unlikely, due to the PRC's stake in a stable and economically thriving Taiwan, the threat must still be addressed by military planners.

**b. DF-11**

The DF-11, or M-11, is the second SRBM in the active PLA inventory. The DF-11 is a mobile SRBM with an estimated range of 200nm. The DF-11 is now believed to incorporate the same INS as the DF-15. While the DF-11 may have many of the same attributes as the DF-15, the DF-11 has two main differences. First, the DF-11 carries a larger warhead, about 800kg with a 150-meter CEP. Second, the flight time for the DF-11 is half as long as the DF-15. This will make missile defense systems on Taiwan hard pressed to target and engage the DF-11 once launched.<sup>135</sup> Reportedly, the PRC is trying to develop a long-range version of the DF-11 with GPS, as well. As the DF-11 inventory grows, the missile defenses on Taiwan need to be prepared for this emerging threat.

**c. DF-21**

The DF-21 medium-range ballistic missile (MRBM) is currently replacing the older DF-2 as its new tactical nuclear missile.<sup>136</sup> The DF-21 is a mobile, solid-propellant ballistic missile able to carry a 600kg warhead, travel over 1000nm and carry a

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<sup>134</sup> House of Representatives Select Committee, *Cox Report U.S. National Security and Military/Commercial Concerns with the People's Republic of China* (May 1999), Volume 1, p. 187. <http://www.house.gov/coxreport/pref/preface.html>. 31 July 2003.

<sup>135</sup> Stokes, "Chinese Ballistic Missile Forces in the Age of Global Missile Defense: Challenges and Responses," p. 117.

<sup>136</sup> See *Annual Report on the Military Power of the People's Republic of China*, p. 31.

nuclear payload.<sup>137</sup> Currently, the MRBM is equipped only for nuclear missions due to its CEP of 700-meters. However, the PRC is researching whether the DF-21 can be outfitted with a conventional warhead and a terminal guidance system to allow for greater accuracy. If this is possible, the DF-21 will be a significant weapon against Taiwan and the United States, particularly forces stationed in Japan, due to insufficient missile defenses currently available.<sup>138</sup> (See Figure 2 for PRC missile sites against Taiwan.)

Another concern for U.S. forces operating around Taiwan and the western Pacific is the development of the submarine-launched ballistic missile (SLBM) based on the DF-21. The JL-1 reportedly has a range of 1200nm and will be deployed on the *Xia* SSBN.<sup>139</sup> Although, the missile has yet to be deployed on the *Xia*, mainly due to the submarine's poor operational record, the PRC intends to produce up to six submarines capable of firing this SLBM.<sup>140</sup> The PRC's goal of producing six SSBNs capable of firing this SLBM is still far into the future and is quite a lofty goal based on past R&D performance. The employment of the JL-1, whether with a nuclear or conventional warhead, on a operating PLAN submarine will force ROC and U.S. forces operating in the area to move about cautiously. According to the U.S. Department of Defense, the deployment of the JL-1 SLBM on the *Xia* is scheduled for 2003.<sup>141</sup> However, it is not yet known if the PRC has decided to act according to their schedule.

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<sup>137</sup> House of Representatives Select Committee, Volume 1, p. 188.

<sup>138</sup> Mark A. Stokes, "China's Military Space and Conventional Theater Missile Development: Implications for Security in the Taiwan Strait," in *People's Liberation Army After Next*, ed. Susan Puska, 107-183. (Carlisle: Strategic Studies Institute, 2000), p. 121.

<sup>139</sup> House of Representatives Select Committee, Volume 1, p. 189.

<sup>140</sup> Robert A. Manning, Ronald Montaperto and Brad Roberts, *China, Nuclear Weapons and Arms Control: A Preliminary Assessment*. (New York: Council on Foreign Relations, 2000), p. 20.

<sup>141</sup> See *Annual Report on the Military Power of the People's Republic of China*, p. 31.

Location of SRBM sites aimed at Taiwan.

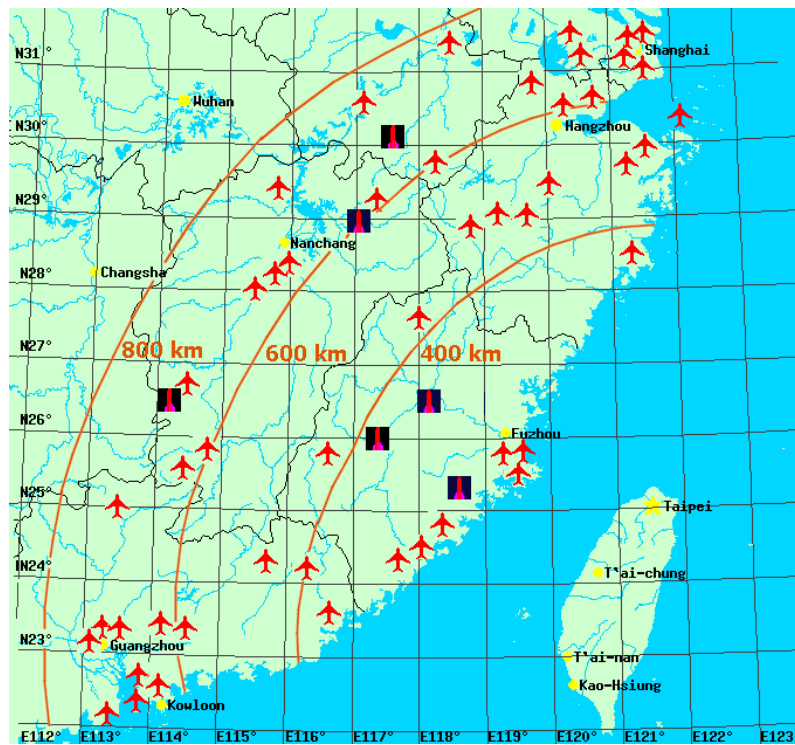


Figure 2. Federation of American Scientists, [www.fas.org/man/dod-101/taiwan-geo.htm](http://www.fas.org/man/dod-101/taiwan-geo.htm).

## 2. Intercontinental Ballistic Missile

According to their 2002 National Defense White Paper, the PRC has consistently advocated the complete destruction and prohibition of nuclear weapons and all forms of weapons of mass destruction (WMD). Also, the PRC believes it exercises the utmost restraint by maintaining the lowest level of nuclear weapons in its arsenal for self-defense purposes only.<sup>142</sup> However, its intercontinental ballistic missile (ICBM) inventory, the missiles capable of striking the United States and its allies throughout Asia, continues to grow. According to the Department of Defense, the PRC's number of ICBMs targeted at the United States may rise from twenty to thirty by 2005 and sixty by 2010.<sup>143</sup> While the use of a WMD weapon is unlikely in the reunification of Taiwan, this is not the purpose behind the increase in the PRC's ICBM inventory. The PRC hopes its ICBM inventory will deter the United States, or any foreign nations, from interfering with the reunification

<sup>142</sup> *Xinhua Domestic Service*, pp. 29-30.

<sup>143</sup> See *Annual Report on the Military Power of the People's Republic of China*, p. 31

of Taiwan for fear of a nuclear attack. Currently, the PRC relies on four operational and developmental ICBMs and one in development for its nuclear deterrence. These missiles are the DF-4, DF-5, DF-31 and DF-41.

**a. DF-4**

The DF-4 is the oldest weapon in the PRC's nuclear arsenal. The original purpose of the DF-4 was to give the PRC the ability to strike U.S. bases in the Philippines and Guam.<sup>144</sup> Being the oldest weapon, the DF-4 is the most technologically inferior ICBM in the PRC inventory. The DF-4s warhead is 2200kg (roughly 1-3 megatons) and has a range of approximately 1700nm. The DF-4 is can easily be targeted because it is deployed in fixed underground silos and needs a significant amount of preparation time for launch. In an effort to diversify the missile's use, the PRC uses the DF-4 to launch Chinese satellites into space.<sup>145</sup> With China's effort into space growing, the DF-4 could be used to target U.S. satellites capable of gathering intelligence on the PRC or military satellites capable of providing the United States with GPS information. The DF-4's ability to launch into space makes it a weapon the PRC could use against U.S. satellites during combat operations. The DF-4 was used in China's first attempt to test MIRV technology on ICBMs, but this was unsuccessful due the large warhead size. The majority of DF-4 ICBMs have been decommissioned, but the PRC is planning to retain about a dozen until the end of the decade.<sup>146</sup>

**b. DF-5**

Developed at the same time as the DF-4, the DF-5 was designed to attack the continental United States and has become the main PRC nuclear threat against the United States.<sup>147</sup> The DF-5 ICBM is deployed in approximately twenty silos throughout the PRC and all are reportedly targeted at the United States. The DF-5 is a single warhead weapon with a 2200kg (3-5 megatons), has a range of approximately 9000nm, and requires a long time for launch preparation. Due to its long preparation time and the ability for the United States to strike the DF-5 while still in its silos, the PRC intends to

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<sup>144</sup> Stokes, *China's Strategic Modernization: Implications for the United States*, p. 87.

<sup>145</sup> Shambaugh, *Modernizing China's Military*, pp. 277-278.

<sup>146</sup> See *Annual Report on the Military Power of the People's Republic of China*, p. 31.

<sup>147</sup> House of Representatives Select Committee, Vol.1, p. 182.

replace all of the twenty DF-5 with a longer range, mobile and more accurate version by the end of the decade.<sup>148</sup>

**c. DF-31**

The DF-31 is the PRC's ICBM of choice for the future. The DF-31 was designed to compensate for the deficiencies of the earlier PRC ICBMs. The DF-31 is a road-mobile, solid-fueled missile with a short launch preparation time and is therefore difficult to track by the U.S. military. Reportedly, the DF-31 will increase its lethality by being linked to the Chinese GPS version through an INS.<sup>149</sup> A GPS onboard the ICBM will allow the missile to change course in mid-flight, via computer, and attack a target other than the one originally designated. If the DF-31 is outfitted with this capability, the ICBM will be incredibly difficult to track and destroy by U.S. missile defenses. With its range of approximately 5000nm, the DF-31 is replacing the DF-4 and assuming its role for targeting the United States.<sup>150</sup>

The DF-31 will most likely be used to continue the PRC's attempts to adapt MIRV technology on its ICBMs. The Cox Report states that the PRC is aggressively trying to develop MIRV technology for its ICBMs and asserts the PRC will be able to deploy 1000 thermonuclear warheads on its ICBMs by 2015.<sup>151</sup> If the PRC is able to deploy MIRV technology on an ICBM that can target Hawaii, Alaska and the west coast of the United States, it may prove a major influence to the United States' decision to aid Taiwan. However, it is still unclear whether the PRC feels has decided that MIRV technology, instead of a single warhead, will be cheaper to maintain for its ICBMs.<sup>152</sup>

**d. JL-2**

As mentioned earlier, the PRC is developing its nuclear arsenal for sea-based operations. The JL-2 is the sea-based version of the DF-31 and is expected to be

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<sup>148</sup> See *Annual Report on the Military Power of the People's Republic of China*, p. 31.

<sup>149</sup> Shambaugh, *Modernizing China's Military*, p. 278.

<sup>150</sup> Paul H.B. Godwin, "China's Nuclear Forces: An Assessment," *Current History* (September 1999), p. 262.

<sup>151</sup> House of Representatives Select Committee, Vol. 1, p. 186.

<sup>152</sup> Zalmay M. Khalilzad and others, *The United States and a Rising China: Strategic and Military Implications* (Santa Monica: RAND, 1999), pp. 39-41.

deployed on the PRC's newest SSBN, the *Type-094*, by 2010.<sup>153</sup> The JL-2 may allow the PRC to bring its nuclear deterrent to the open ocean and also to deter U.S. forces close to PRC waters. The Cox Report speculates that the JL-2 would change PRC tactics by allowing its SSBN's to operate near the mainland, or possibly the eastern side of Taiwan, and engage U.S. targets.<sup>154</sup> This tactical change is due to the possible employment of a protective shroud around the warhead of SLBM. However, with the *Type-094* still in development and the *Xia* hardly operational, this tactical change seems highly unlikely for some time.

*e. DF-41*

The DF-41 is the longer range version of the DF-31. This ICBM will ultimately replace the DF-5. Because there have been no flight tests, not much is known about the missile. The DF-41 is expected to have a range of 7400nm, a range that would allow it to reach the east coast of the United States. The DF-41 is expected to have an INS with GPS capability and may be deployed in ground silos or in mobile trailers.<sup>155</sup> If the PRC is able to develop the technology and equip the DF-31 with MIRVs, then the development of the DF-41 will most likely encompass deploying MIRVs as well. Some reports expect the DF-41 to carry as few as three MIRVs and as many as nine when it becomes operational.<sup>156</sup> The Department of Defense expects the DF-41 to be deployed in the PRC between 2005 and 2010.<sup>157</sup>

### **3. Cruise Missile Technology**

The use of cruise missiles will directly affect actual operations against Taiwan in the future. PRC cruise missiles, as noted earlier, are used throughout the PLA in a variety of manners. The PRC is committing significant resources to developing cruise missiles that rival those in the U.S. and ROC arsenals. When researching the 1991 Persian Gulf War, the PRC was amazed by the performance of U.S. and allied cruise missiles,

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<sup>153</sup> See *Annual Report on the Military Power of the People's Republic of China*, p. 31.

<sup>154</sup> House of Representatives Select Committee, Vol. 1, p. 187.

<sup>155</sup> Shambaugh, *Modernizing China's Military*, p. 279.

<sup>156</sup> Manning, Montaperto and Roberts, p. 25.

<sup>157</sup> See *Annual Report on the Military Power of the People's Republic of China*, p. 31

particularly the TOMAHAWK.<sup>158</sup> Based on its research, the PRC is modernizing its cruise missiles with advanced technology to target accurately Taiwan in a first strike. Accurate cruise missile attacks would not only allow the destruction of ROC defenses, but minimize the destruction of Taiwan's infrastructure for later use by the PRC.

The PRC is developing terrain contour mapping (TERCOM), digital satellite matching (DSMAC) and GPS navigation technology for use in its cruise missiles. This technology is common with U.S. missiles launched in combat, and the PRC wants it for the modernization of its forces.

**a.       TERCOM**

Increased accuracy is critical to the modernization of the PRC's cruise missiles. Prior intelligence and advanced technology will allow the PRC to achieve this capability. TERCOM allows cruise missiles to follow preprogrammed flights using digital maps in their data bases.<sup>159</sup> Not only does TERCOM allow for greater accuracy against targets, but the mapping system, along with good prior intelligence, will allow the PRC to program its cruise missiles to bypass ROC missile defenses when engaging its intended target.

**b.       DSMAC**

Another technology essential to increased accuracy is digital mapping. Digital mapping allows for increased target resolution, via satellites, which will help ensure PRC cruise missiles engage their assigned targets. DSMAC technology, combined with TERCOM, augments a cruise missile's capability to bypass missile defenses, and helps ensure higher strike accuracy to avoid unnecessary collateral damage.<sup>160</sup> Since DSMAC needs satellite information, the recent and future PRC space launches will aid in further utilizing this technology in combat.

**c.       GPS**

Finally, GPS guidance, technology the PRC will either develop indigenously or with help from Russia, is almost within China's capability. As noted

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<sup>158</sup> Stokes, *China's Strategic Modernization: Implications for the United States*, p. 80.

<sup>159</sup> Ibid., p. 83.

<sup>160</sup> Bernard D. Cole and Paul H.B. Godwin, "Advanced Military Technology and the PLA: Priorities and Capabilities for the 21<sup>st</sup> Century," in *The Chinese Armed Forces Face the 21<sup>st</sup> Century*, ed. Larry M. Wortzel, 159-215 (Carlisle: Strategic Studies Institute, 1999), p. 199.

earlier, the PRC is trying to apply GPS to its current and developmental missile systems. GPS guidance will not only allow for greater accuracy of a pre-programmed flight path, but will give the PRC the ability to change the flight paths of its cruise missiles during actual employment in combat via computer on the mainland. As this technology is developed and implemented, GPS will provide the PRC a tremendous advantage over the ROC due to its ability to strike mobile ROC target during real-time.

### **C. MISSILE DEFENSE**

BMD is an extremely controversial subject between the United States and the PRC.<sup>161</sup> The PRC released the following statement about BMD in the western Pacific in its 2002 White Paper on National Defense:

China is concerned about certain countries' joint research and development of theater missile defense (TMD) systems with a view to their deployment in the Northeast Asian region. This will lead to the proliferation of advanced missile technology and be detrimental to peace and stability in the Asia-Pacific region. China resolutely opposes any country which provides Taiwan with TMD assistance or protection in any form.<sup>162</sup>

Strategically, due to the PRC's reliance on missiles in a confrontation with the ROC, the stationing of a BMD system would negate the effectiveness of a missile attack on Taiwan. Politically, the PRC contends that a BMD system stationed in or around Taiwan would violate commitments in normalizing U.S.-PRC relations and imply that Taiwan is an independent state.<sup>163</sup> The PRC considers none of these outcomes as favorable.

Currently, there are two types of BMD systems in development: a land-based and sea-based system. Both systems would prove a serious deterrent against a PRC attack on Taiwan.

#### **1. Land-based**

The PRC missiles across the Taiwan Strait have forced Taiwan to modernize its missile defenses. Due to the United States refusal to sell the ACS to Taiwan, the ROC is

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<sup>161</sup> In 2002, the Bush Administration removed all theater distinctions in missile defense and collectively labeled the concept as "missile defense."

<sup>162</sup> *Xinhua Domestic Service*, p. 31.

<sup>163</sup> Shambaugh, "A Matter of Time: Taiwan's Eroding Military Advantage," p. 120.



reliant upon land-based systems. Taiwan has deployed four batteries of the Modified Air Defense System (MADS), a variant of the PATRIOT system (PAC-2 Plus).<sup>164</sup> This system has only a moderate success rate and is designed for continuous upgrades.

Throughout the deployment of the MADS in Taiwan, the PRC voiced its objections to Washington. The PRC said emphatically that diplomatic relations between the United States and China would be in dire straits. Despite the rhetoric between the two countries, the diplomatic efforts from countries have continued to improve. In an effort to reassure the ROC that the United States was committed to its security, the United States has offered the PATRIOT PAC-3 missile defense system.<sup>165</sup>

The PAC-3 is the newest variant of the PATRIOT system and is able to track multiple targets with greater accuracy and response from its operators. The PAC-3 is a mobile, lower-tier system designed to engage short and medium-range ballistic missiles, cruise missiles and aircraft. The PAC-3's best advancement is the use of hit-to-kill technology instead of a proximity fuse employed in previous versions. Recent operational results from Operation IRAQI FREEDOM showed that the PAC-3 was able to provide an adequate missile defense, but that it still needed numerous modifications. The operational success of the PAC-3 in combat makes it a highly desired by the ROC. Despite the possible receipt of the PAC-3, the PRC feels confident it has sufficient enough forces to defeat ROC defenses.<sup>166</sup>

The second land-based BMD system is still in development and desired by Taiwan when it becomes operational. The Theater High Altitude Area Defense (THAAD) is designed to engage medium and long-range ballistic missiles. The THAAD system is intended to engage incoming missiles inside or outside the atmosphere.<sup>167</sup> The technology of the THAAD system will ensure the missile is not susceptible to decoys and

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<sup>164</sup> Department of Defense, *Report to Congress on Theater Missile Defense Architecture Options for the Asia-Pacific Region*, 4 May 1999, p. 13.

<sup>165</sup> McVadon, "Taiwan's Dilemma."

<sup>166</sup> Patrick M. O'Donogue, *Theater Missile Defense in Japan: Implications for the U.S.-China-Japan Strategic Relationship* (Carlisle: Strategic Studies Institute, 2000), pp. 2-3.  
<http://www.carlisle.army.mil/ssi/pubs/2000/japtmdfs/japtmdfs.htm>. 24 July 2003.

<sup>167</sup> Wendy Friedman, "The Arms Control and Ballistic Missile Defense Costs of a Chinese Conflict," in *The Cost of Conflict: The Impact on China of a Future War*, ed. Andrew Scobell, 163-185 (Carlisle: Strategic Studies Institute, 2001), p. 172.

will become part of a C2BM system linking it to other defensive measures. The THAAD system is scheduled for deployment by 2007.<sup>168</sup>

## **2. Sea-based**

The sea-based BMD system will be deployed on U.S. Navy warships equipped with the ACS. The AEGIS BMD, formerly known as the Navy Area Wide system, will use the Standard Missile 3 (SM-3) for engagement. The primary focus of the AEGIS BMD system is to counter short and medium-range ballistic missiles. With more development in the future, the AEGIS BMD will hope to engage ICBMs. The AEGIS BMD will build upon the SM-3 structure already in place on both *Ticonderoga*-class cruisers and *Arleigh Burke*-class destroyers. The AEGIS BMD is scheduled for deployment in 2006.<sup>169</sup>

## **D. SUMMARY**

The missile inventory of the Second Artillery Corps is rapidly increasing by means of indigenous technology. The PRC is not relying on foreign acquisitions to modernize and build up its strategic missile force. Indigenous technology, foreign advanced tracking and intensive study of U.S. missiles in combat is guiding the PRC to deploy an unprecedented number of short, medium and long-range missiles against Taiwan and the United States. The PRC's missile inventory serves a two-fold purpose. First, with enough short and medium-range missiles deployed along the Taiwan Strait, the PRC hopes to coerce the ROC into reunification. Second, the PRC hopes the long-range ICBMs in its inventory will deter the United States from aiding Taiwan during an aggressive reunification.

Due to this missile threat, the United States is developing a cohesive missile defense system capable of engaging PRC missiles fired at Taiwan or the United States. Although not fully developed, the deployment of U.S. BMD system on Taiwan, at sea on U.S. Navy ships, and elsewhere in the western Pacific has proven diplomatically troublesome for the United States and the PRC. If the United States deploys the advanced BMD systems to Taiwan, the PRC will believe that the United States is once again

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<sup>168</sup> Ibid.

<sup>169</sup> Missile Defense Agency, *Aegis Ballistic Missile Defense* (July 2003).  
<http://www.acq.osd.mil/bmdo/bmdolink/html>. 12 September 2003.

moving towards recognizing Taiwan as an independent state. While diplomatic actions between the two countries cannot be stopped, the PRC's reliance on nuclear weapons as a deterrent for reunification must not be ignored. The ever increasing number of missiles aimed at Taiwan proves that the PRC wants reunification, even if it is through military means.

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## **VI. PEOPLE'S LIBERATION ARMY**

### **A. BACKGROUND**

At one time, the People's Liberation Army (PLA) was the backbone of the PRC's defense strategy. The PRC has long believed that it could effectively fight an enemy on the mainland by trading the space of China's vast terrain for time in order to defeat enemy forces. The PLA was trained to allow enemy forces to move deep into China and, once enemy forces had both its troops and logistic support well within Chinese territory, the PLA would then attack. The PRC has maintained this defense strategy and relied on a massive infantry force even as the world's militaries changed with modern technology. Due to ineffective reforms and an inability to adapt, the PLA grew to 4 million troops, but in the process became a relatively ineffective fight force.

Between 1950 and 1979, the PLA fought the United States, India, the Soviet Union and Vietnam in various actions. In each instance, the PLA suffered a large number of casualties due to a lack of effective infantry tactics and poor equipment issued to its soldiers. While recognizing these losses, the PLA continuously failed to learn from its experiences and implement effective reforms. In 1985, with these failures in mind, Deng Xiaoping called for a reduction in manpower to release funds towards modernization for each service. Although the PLA has been reduced to nearly the 1.6 million army troops, the PLA has not received the same commitment to modernization as the other branches. The significant amounts of foreign, particularly Russian, military acquisitions received for modernization have not gone to the army.<sup>170</sup> This lack of army modernization was further complicated by perceptions about the use of air power during the Persian Gulf War and the Kosovo campaign. During its study of these conflicts, the PRC foresaw a lesser need for large, highly immobile infantry units to defend the mainland. The PRC no longer wanted to fight a people's war, but wanted to prepare for limited, local wars with high-tech equipment. PRC studies prompted the formation of rapid reaction and special forces units in its army to the neglect of other units in the army. However, through recent studies of U.S. forces in Afghanistan and Iraq, the PRC is once again showing an interest

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<sup>170</sup> Fisher, "Foreign Arms Acquisitions and PLA Modernization," pp. 106-108.

in on modernizing its infantry, with an emphasis on its mechanized units. This effort can help its army units to move with the speed and mobility of a U.S. armored or infantry division.

Despite any advance in modernization the PLA may achieve, without proper amphibious or transport capabilities, the army's efforts are purely superficial against Taiwan. As noted in previous chapters, the PRC currently lacks the ability to transport an adequate number of soldiers and equipment to successfully invade Taiwan. The PRC will not acquire these capabilities for at least the next twenty years, if not more. To compound its modernization problems, the army has received little support from the CMC to modernize. However, given the modern equipment the PLA does receive is only supplying its units in the southeast in preparation for future operations against Taiwan.<sup>171</sup> With the PRC striving for the capability to transport its troops to the battlefield, it is important to understand the efforts of the PRC in modernizing its ground forces.

This chapter discusses the modernization of the PLA's infantry, armor, artillery and aviation units and its possible effects on an assault on Taiwan. Also, the chapter discusses the doctrinal and personnel changes the PLA is pursuing in order to keep step with fast-paced, highly fluid combat environment.

## **B. INFANTRY**

The PRC divides the mainland into seven Military Regions (MR) and assigns PLA units to each MR for its defense. Currently, the PLA divides its infantry forces into two groups, both of which have a distinctively differently mission while protecting the MRs. These two groups are border defense and internal security forces and high priority, mobile units.<sup>172</sup> These units are different in training and in the type of equipment issued to their respective soldiers. Due to the training discrepancies among these PLA units, the level of modernization in the two groups is vastly different. However, the PRC has committed a significant number of infantry troops with a respectable amount of quality training to the southeast of China.

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<sup>171</sup> See *Annual Report on the Military Power of the People's Republic of China*, p. 29.

<sup>172</sup> Brown, Prueher and Segal, pp. 41-42.

This emphasis of a trained infantry force, along with a significant number of modern cruise missiles, in the southeast shows the emphasis the PRC has on securing its borders and preparing for action against Taiwan using infantry forces.

With the likelihood of a massive ground campaign or amphibious assault occurring on mainland China considered highly unlikely, the PRC has equipped its border troops with older equipment and inadequate personnel. The PRC believes modern equipment should only go to those PLA troops that are trained and qualified to operate it.<sup>173</sup> The PLA wants to ensure it has trained personnel to operate the equipment due to a lack of foreign acquisitions dedicated solely for the army. PLA border units are poorly trained, with the exception of Taiwan Strait border units. They show little motivation and are equipped with 1950s weaponry. Although the PRC is downsizing its border units to allow for better training and equipment for Taiwan Strait border units, the funds released are continuously going to advanced units and not border defense. Without augmenting the PRC's border units, particularly those across from Taiwan, a serious weakness is emerging in Chinese defense.

The major effort behind the PLA's infantry modernization is transforming its forces into group armies capable of launching highly mobile and technologically advanced campaigns. However, these reforms have severely limited the PLA's capability to transform into cohesive group armies due to the significance placed on special units by the CMC.<sup>174</sup> The PLA has focused on removing large infantry forces incapable of providing a rapid response to crises throughout China. To aid in this effort, the PRC has reduced its manpower and more specifically designated infantry units as rapid response capable. While this seems a sound plan, the PLA's efforts have only aided smaller units while its regular infantry has been neglected.

The PLA has divided its infantry forces into 20 group armies, 40 maneuver divisions and 40 maneuver brigades with, according to the Department of Defense, a

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<sup>173</sup> James C. Mulvenon, "The PLA Army's Struggle for Identity," in *The People's Liberation Army and China in Transition*, eds. Stephen J. Flanagan and Michael E. Marti, 109-127 (Washington, DC: National Defense University, 2003), pp. 123-124.

<sup>174</sup> You, p. 37.

dozen divisions and several brigades designated as rapid reaction, or Fist, units.<sup>175</sup> These FIST units are regular infantry forces being trained for rapid deployment and highly mobile warfare. The first successful experiment of these Fist units took place in the South China Sea. A PLA Fist unit, most likely consisting of a small number of troops with the PLA's poor amphibious capability, simulated the seizure of a number of small islands in the area.<sup>176</sup> While deemed successful, this operation did not demonstrate a true rapid reaction capability. The larger goal of the PRC is to designate one Fist unit in each of its group armies, and at the very least one in each of the seven MRs. The PRC hopes that these units will be capable of traveling to designated areas to engage an enemy force or quell an internal security matter. However, due to the lack of dedicated training for these units, the probability of the PLA actually achieving its goal is highly unlikely.

Another attempt to utilize infantry forces more effectively is through special operation forces (SOF). The perceived use of SOF by U.S. and coalition forces during the conflicts in Afghanistan and Iraq impressed Beijing. During both conflicts, SOF were assigned to secure or destroy different C4I assets and logistical objectives in order to prepare for the arrival of follow-on units. According to the Department of Defense, the PLA intends to use SOF to carry out missions deemed time-critical as part of an expanded ground campaign. The PRC will dedicate its SOF to conduct surveillance, capture or destroy airfields and ports, destroy IADS and conduct psychological operations intended to deceive Taiwan and deny them intelligence information.<sup>177</sup> The PLA has reportedly conducted successful SOF operations that validate the training of this special mission force, but like the Fist units, no undeniable demonstration of their ability has arisen. Also, due to a lack of comprehensive joint training between SOF and the PLA's regular infantry, the two groups do not work well together in the field. This lack of training makes it likely that any PRC assault on Taiwan in the near future could end in disaster.

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<sup>175</sup> See *Annual Report on the Military Power of the People's Republic of China*, p. 28.

<sup>176</sup> Shambaugh, *Modernizing China's Military*, p. 98.

<sup>177</sup> See *Annual Report on the Military Power of the People's Republic of China*, p. 28.



In an effort to make its infantry more mechanized, the PRC has purchased from Russia the BMP-3 Infantry Fighting Vehicle (IFV).<sup>178</sup> This IFV can allow infantry units to maintain formation with armored units and allow smaller units to move into battle quicker. The BMP-3 can also allow PLA soldiers to enter into combat with vehicles equipped with a heavy machine gun and laser guided anti-tank missiles. The PLA does not equip either weapon in its infantry units and each can be able to provide suppressive fire for advancing infantry and the capability to disable or destroy an enemy tank without CAS or a friendly armor asset. However, due to the small number of IFV bought from Russia--reportedly 200--the PLA will probably equip Fist or SOF with the BMP-3 but not the regular infantry.<sup>179</sup> Only equipping these specialized units would defeat the PLA's purpose of trying to form a more mechanized infantry force. The PLA also intends to purchase 1000 armored personnel carriers from Western Europe, but it has yet to do so.<sup>180</sup>

## **C. ARMOR**

### **1. Type-59**

The PLA's armored units consist of approximately 8300 main battle tanks (MBT) of varied design and operability. The backbone of these armored units is the Type-59 MBT, approximately 6000 of which are in the PLA's inventory.<sup>181</sup> The PRC has produced numerous variants of the Type-59 MBT and has deployed these tanks throughout its armored units. The PRC produced so many Type-59 MBTs that Beijing sold the tanks to various nations, including Iraq. The PRC's analysis of the 1991 Persian Gulf War showed how obsolete this tank was in modern combat. The speed, agility and firepower of the U.S. M1A1 Abrams tank divisions completely decimated the Iraqi armored divisions using the Type-59 MBT. This realization forced the PRC to develop a more modern tank and begin modifications of its existing tanks. Many of the Type-59 MBTs were retrofitted with the long-range 105-mm main gun, laser range finders and

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<sup>178</sup> Michael J. Barron, "China's Strategic Modernization: The Russian Connection," *Parameters* (Winter 2001-02), p. 75. <http://carlisle-www.army.mil/usawc/Parameters/01winter/barron.htm>. 7 August 2003.

<sup>179</sup> Fisher, "Foreign Arms Acquisition and PLA Modernization," p. 173.

<sup>180</sup> Chong-Pin Lin, "The Military Balance in the Taiwan Straits," in *China's Military in Transition*, eds. David Shambaugh and Richard H. Yang, 313-331(Oxford: Clarendon Press, 1997), p. 319.

<sup>181</sup> Shambaugh, *Modernizing China's Military*, p. 252.

anti-aircraft guns to aid in this effort.<sup>182</sup> However, the modifications still do not make the Type-59 a match for either the ROC M-60 or U.S. Abrams MBTs.

## **2. Type-80 and Type-85**

The most modern tanks in the PLA inventory are the Type-80 and Type-85 MBTs. The PRC purchased 200 of these MBTs in 1993 from Russia and have distributed them to FIST units.<sup>183</sup> More importantly, the FIST units are located in southeast China, in preparation against Taiwan. These MBTs boast better armored protection, a more advanced main gun, 125-mm, additional space for the tank crew and ammunition and provide a laser guided anti-tank missile capability. These tanks are designed to defeat the 120 former U.S. M60 MBTs the ROC uses in its armored units. The Type-85 compares to the Russian T-72 MBT in design, performance and weight, but with an advanced fire control system onboard, it is a deadlier weapon. Taking note of U.S. MBT doctrine, the PLA developed a fire control system that allows the Type-85 to engage targets while still moving.<sup>184</sup> However, the PLA does not train with these new capabilities due to a lack of proper deployment in its armored units.

## **3. Type-90 and Type-98**

The PLA is developing two MBTs based on indigenous technology that could rival the U.S. M1A1 Abrams tank. These MBTs are the Type-90 and Type-98. The Type-90 was unveiled in 1991 and is an improvement over the older Type-85 MBT. The PLA designed the Type-90 to be more mobile than its previous tanks. It is modeled with a stronger hull construction for better armor protection and is designed to use advanced anti-tank munitions, such as high explosive anti-tank rounds, high explosive fragmentation rounds and armor piercing sabot rounds in each tank produced. This is unlike previous tanks, only a few of which could fire more advanced munitions. The Type-98 is a newer variant of the Type-90 and expands upon the improvements of its predecessor. The Type-98 is designed for more advanced combat with an advanced fire control system and a larger 125-mm gun. The Type-98 is the first PLA tank equipped

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<sup>182</sup> Ibid., p. 253.

<sup>183</sup> Fisher, "Foreign Arms Acquisition and PLA Modernization," p. 172.

<sup>184</sup> Shambaugh, *Modernizing China's Military*, p. 254.

with an all-weather sight and computer control panel from its conception.<sup>185</sup> The Department of Defense expects the number of Type-90s and Type-98s produced to reach 1500 and deployable throughout the PLA by 2005.<sup>186</sup>

#### **D. ARTILLERY**

The PLA has always used artillery as the main proponent for launching ground campaigns. Since the PLA is modernizing to fight advanced land, air and sea battles, the PLA wants to transform its artillery capability to fight in a modern battlefield. In an attempt to modernize its artillery, as well as continue to operate with past doctrine, the PLA is modernizing its artillery units with newer and more mobile equipment.<sup>187</sup> By maintaining its artillery units, the PRC still has effective combat tools, and maintains links to past doctrine.

In the past, the PLA needed to transport its artillery via rail or by tow. The majority of the PLA's conventional artillery systems are no longer towed due to the time wasted in such an effort. However, towed systems are still widely utilized by units not equipped with newer artillery systems, particularly those in the west. The PLA has studied the U.S. Army's mobile artillery and placed much of its heavier guns on tracked vehicles and tanks. The PLA utilizes two types of these guns: 155-mm and 203-mm self-propelled howitzers (SPH). Both SPH systems are comparable to U.S. and Western artillery systems, but neither is widely deployed throughout the PLA.<sup>188</sup> This is due to the PLA's poor infrastructure, but the PLA is making strides to provide each region with the SPHs. If the PLA were able to produce a significant amount of these guns, they could be deployed in operations on Taiwan. However, PLA forces would need to transport these heavy guns across the Taiwan Strait and then deploy them on Taiwan to be useful for infantry forces.

The main improvement to the PLA's artillery units is the deployment of a multiple-launch rocket system (MLRS). In its analysis of the 1991 Persian Gulf War, the

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<sup>185</sup> Ibid., pp. 254-255.

<sup>186</sup> See *Annual Report on the Military Power of the People's Republic of China*, p. 28.

<sup>187</sup> Zi Wuzheng, "China's Artillery Development," in *Chinese Views of Future Warfare*, ed. Michael Pillsbury, 173-178. (Washington, DC: National Defense University, 1997), pp. 173-175.

<sup>188</sup> Shambaugh, *Modernizing China's Military*, p. 256.

PLA saw the significant advantage that an accurate rocket barrage gave U.S. and coalition forces as forces moved forward into battle. By engaging the enemy with the MLRS, the U.S. and coalition forces suppressed Iraqi units concerned with the incoming barrages and then moved armored and mechanized units into battle before the Iraqis knew those forces were in the area. Following this example, the PRC would like to utilize this capability against Taiwan. A MLRS would allow the PLA to engage ROC targets at long ranges, use multiple barrages, and attack with great accuracy. The Russian government has reportedly sold the PRC a Splav *Smerch* MLRS with anti-armor munitions, mines and large warheads.<sup>189</sup> This system would be used to disperse ROC forces along the beachhead as PLA forces try to move ashore. The PRC is also working to augment its technology by developing its own MLRS, but the research is on-going.<sup>190</sup>

## **E. DOCTRINE AND PERSONNEL**

As with the other services, the PLA is pursuing a change of doctrine and personnel in order to prepare for the future of combat. The PLA understands that its army cannot move against Taiwan unless significant changes are implemented. The PLA is modifying its training to conduct joint operations among services, striving to maintain higher educational standards for its officer corps and working to establish a group of non-commissioned officers (NCO) to strengthen leadership within the ranks and striving for better command and control (C2) operability during ground campaigns.

### **1. Joint Operability**

For more efficient military operations and better cooperation between services, the branches of the U.S. military are striving to work jointly in combat operations. Recognizing that this is the future of effective combat operations, the PLA has taken up this effort. However, as the U.S. military knows, operating in a joint combat environment takes more than forces working together to become an effective weapon in combat. In past chapters, examples were provided on the successes and failures of the PLA joint operations. One problem the PLA has taken up is joint logistics. In 1999, the PLA began an effort to integrate the logistics of all its combat units. Like the U.S. military, by

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<sup>189</sup> Fisher, "Foreign Arms Acquisition and PLA Modernization," p. 107.

<sup>190</sup> See *Annual Report on the Military Power of the People's Republic of China*, p. 28.

combining the logistics of all the services, the PLA would be able to lessen costs and put forth more money towards modernization. The PLA has experimented in a variety of ways to manage the logistics of joint operations, but most have not succeeded.<sup>191</sup> The PLA's ability to control its logistics will prove to be a vital factor in the success of joint operations against Taiwan. Without supplies to equip the services in combat, compounded by the PLA not operating on its own territory, the PLA could be rendered useless.

## **2. Education / NCO**

As the U.S. military understood after the Vietnam War, relying on dedicated professional soldiers, forced the costs of a trained military to rise dramatically.<sup>192</sup> However, these rising costs allow for more varied training and better education for its leaders. To raise the education level of its officers, the PLA is sending its officer corps through various professional and college courses in an effort to provide them with more experience. The establishment of a National Defense University and several other universities like it has helped train PLA officers to become more prepared for varied assignments and possess the educational backgrounds necessary to succeed in those new assignments. For all of its officers, both current and those commissioned in the future, the PLA has set the goal of having its officers earning a college degree by 2005. In another effort to raise the education level, the PRC is implementing an officer-recruiting program at universities throughout China in order to train students before they join the PLA.<sup>193</sup> Both of these initiatives will allow for the improvement of the PLA's officer corps, but the tangible results may not show for some time.

The second method the PLA has chosen to build up its core leadership was to establish a NCO corps in early 1990s. Due to its new preference not to rely on conscripts, the PLA has awarded those who chose to stay in the PLA by providing them with higher rank and pay.<sup>194</sup> Those who chose to stay were selected as NCOs and placed throughout

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<sup>191</sup> Lonnie Henley, "PLA Logistics and Doctrine Reform, 1999-2000," in *People's Liberation Army After Next*, ed. Susan M. Puska, 55-77 (Carlisle: Strategic Studies Institute, 2000), pp. 62-63.

<sup>192</sup> Ibid., p. 65.

<sup>193</sup> Brown, Preuher, and Segal, p. 42.

<sup>194</sup> Mulvenon, p. 121.

various units in the PLA. At first, the NCOs were slowly put into leadership positions in the PLA to ensure that there was a core of leadership throughout the services. Throughout this process, the PRC began to decrease initial tours of duty for its conscripts and lengthened the contracts for those who chose to become NCOs. The PLA is still experimenting with expanding the role of NCOs due to mixed early results. However, if the PLA continues on this path, it should see positive results in its units.

### **3. Command and Control**

The future of the PLA's command and control (C2) is based on the two preceding factors. As with the other services, the C2 capability of the PLA is minimal. Along with the lack of capabilities to gather early reconnaissance and intelligence information, the PLA also needs to ensure the proper implementation of its officers and NCOs into the C2 process. Junior officers and NCOs will provide commanders with proper on-scene leadership and information. Training them to report information properly will make C2 more efficient and provide more beneficial information to PLA commanders. However, the ability to properly utilize C2 resides not only with on-scene commanders, but also with a headquarters far away from operations. This further complicates the PLA's C2 situation due to a lack of adequate communication equipment.<sup>195</sup> The use of antiquated communication equipment in the majority of PLA units limits the range a PLA infantry unit can travel from headquarters and means that time-sensitive information must be passed over open airwaves. Without proper equipment and procedures, the PLA's C2 capability is minimal, if not useless, in combat against Taiwan.

### **F. SUMMARY**

The PRC will continue to de-emphasize the army until it believes it has achieved an adequate level of modernization comparable to the other services, particularly the PLAAF. As noted earlier, unless the PRC can achieve a greater transport and amphibious capability than it currently possesses, the army's modernization is purely superficial for operations against Taiwan. Although regular infantry still remains the predominant force in ground operations, the PLA is training Fist and SOF units for attacks against Taiwan's

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<sup>195</sup> Brown, Prueher, and Segal, p. 43.

military infrastructure. However, these units have not received the necessary training that would allow them to carry out their mission.

While the PLA is modifying existing tanks and building newer ones with advanced fire control systems, the number of adequate tanks capable of a successful engagement against ROC forces is minimal. The PLA has lofty plans to deploy the advanced Type-90 and Type-98 MBTs--those capable of successfully engaging a U.S. Abrams--but the number projected is not enough for a successful assault on Taiwan, particularly if U.S. forces provide the ROC with support.

The only successes the PLA has achieved are in its initiatives towards officers and non-commissioned officers. By building up its core leadership with education, the PLA is providing itself with the opportunity to utilize trained leaders during combat. If the PLA were able to equip its field leaders with newer communication equipment, the PLA would be able to conduct command and control more effectively over its army units. However, the army's overall modernization is far too weak to provide the PRC with a mobile, technologically advanced force. While the PLA's 1.6 million troops are still a massive power, without the capabilities to control, move, defend and fight with this force, the army poses no real threat to Taiwan.

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## VII. PLA OPTIONS AND WEAPONS FOR THE TAIWAN STRAIT

### A. BACKGROUND

The PRC would like nothing more than reunification with Taiwan. In its white papers, the PRC discusses peaceful reunification, but it also reserves the right to use force against Taiwan to safeguard its own sovereignty and territorial integrity.<sup>196</sup> A direct assault on Taiwan has little chance of success, but many analysts, both in the PRC and the United States still dispute the possibility of such an invasion. Historical evidence suggests that the United States will come to Taiwan's aid if the PRC pursues military action. PRC military planners are confounded by this problem because Beijing wants reunification but does not want to contend with Washington to achieve it. Several times in the past fifty years, the PRC witnessed U.S. carrier battle groups patrol the Taiwan Strait to deter its forces from taking action against Taiwan. Chinese analysts believe that the patrols of U.S. forces in the Taiwan Strait and the increased presence of U.S. forces in the region not only create a de facto military alliance with Taiwan, but the beginnings of a containment of China.<sup>197</sup> Because of these beliefs, the PRC is devising ways to defeat its perceived threats and achieve the goal of reunification.

Based on analysis of U.S. forces in combat, the PRC recognizes that the United States may bring its advanced military might to aid Taiwan. To stop the United States, the PLA is developing ways to exploit U.S. reliance on technology and use it against Washington. Through detailed analysis of U.S. military campaigns in the Middle East and the Balkans, the PLA came to the conclusion that the United States relies heavily on its satellites, GPS navigation, precision weapons for engagements and intelligence information for strikes against its enemy's C2. For future operations against Taiwan, the PRC recognizes the PLA cannot defeat the U.S. military if it comes to Taiwan's aid and must resort to asymmetric means in order to fight it. The PRC is developing technology to deny C2 information simultaneously to both on-scene military commanders and

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<sup>196</sup> Embassy of the People's Republic of China in the United States, Taiwan Affairs Office and the Information Officer of the State Council, "White Paper-The One-China Principle and the Taiwan Issue" (February 21, 2000), pp. 5-6. <http://www.china-embassy.org/eng/7128.html>. 7 August 2003.

<sup>197</sup> Alan Tonelson, *A Necessary Evil? Current Chinese Views of America's Military Role in East Asia*, Stimson Center (May 2003), pp. 18-19. <http://www.stimson.org/inchina/pdf/tomelsonfinal.pdf>. 30 July 2003.

Washington when operations against Taiwan are underway. These asymmetric developments are the backbone to a successful PRC operation against the United States and the ROC in the Taiwan Strait.

This chapter discusses the possibilities of an amphibious assault and a naval blockade on Taiwan. Both scenarios present different options for the PRC and are important to understand in order to project future PRC intentions. Also, the chapter discusses the asymmetric technology the PRC is attempting to exploit in order to defeat possible intervention by the United States.

## **B. AGGRESSIVE REUNIFICATION**

There are two scenarios most often debated for an aggressive reunification with Taiwan; an amphibious assault, and a naval blockade. Both scenarios have advantages and disadvantages that can affect the PRC's political and strategic prospects and their success is dependent on the completion level of PLA modernization. If the PRC attempts either option in the near future, both options may fail and the PRC might suffer international condemnation. However, in twenty years, the PRC may achieve its goals for PLA modernization and then the failure of an aggressive reunification would not be as certain.

### **1. Amphibious Assault**

An amphibious assault on Taiwan is highly unlikely. Several PRC military factors need to be in place in order for Beijing to successfully invade Taiwan. Also, the terrain of Taiwan itself, not to mention the ROC forces defending its territory, provides a natural defense against approaching PLA forces. As noted earlier, the PRC currently does not possess the amphibious capability to transport the number of PLA soldiers necessary for a successful invasion of Taiwan. Also, the PLA does not possess the airlift capability to transport enough of its airborne units. Without its airborne units, the PRC would not be able to carry out preliminary strikes against ROC defenses and C2 centers. However, this may change in next twenty years, depending on China's commitment to building an amphibious fleet. One possible solution is the PLA's use of thousands of small boats using GPS systems and attempting a synchronized approach to Taiwan's coast.<sup>198</sup>

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<sup>198</sup> Piers M. Wood and Charles D. Ferguson, "How China Might Invade Taiwan," *Naval War College Review* (Autumn 2001), pp. 7-8. <http://www.nwc.navy.mil/press/Review/2001/Autumn/art3-au1.htm>. 7 August 2003.

However, this solution seems highly unlikely because of the training and preparation needed to make such an operation successful. Also, the thousands of boats necessary to conduct such an operation would provide Taiwan with ample warning of an attack. While these boats are transiting the Taiwan Strait, ROC radars would be able to detect them. Despite the current lack of transport capability, PRC forces necessary for an invasion need to be discussed.

For a better chance of success, an amphibious assault will need to take place as a phased operation. The PLA's first goal would be to secure the ROC-controlled islands: the Pescadores, Kinmen and Matsu Islands. However, this will not be an easy task for the PLA. The ROC currently maintains 5 divisions on these islands dedicated to security against the PRC.<sup>199</sup> These troops continuously train in repelling island assaults, but they lack the quantitative advantage that the PLA could bring against these few divisions. If the PLA were able to secure the islands, it could establish a base of operations closer to Taiwan and capture or kill the 5 ROC divisions capable of supporting ROC forces for the later assault of Taiwan.<sup>200</sup>

In an effort to gain control of these islands, the PLA is placing a high priority on camouflage and deceptive tactics with its units. The PRC's intent is to create ambiguity about its actual intentions and force the ROC to misallocate resources throughout Taiwan in preparation for any attack.<sup>201</sup> By this tactic, PLA forces may be able to act quickly enough to gain control of the surrounding islands and then start moving its forces against Taiwan.

A phased operation, however, presents several operational problems for the PLA. First, an attack against ROC forces is a time-sensitive matter. The longer it takes the PLA to reach Taiwan, the more time the ROC has to prepare for the attack and begin diplomatic talks with the international community to request help. Second, if the PLA is not able to quickly defeat the 5 ROC divisions and takes heavy casualties, the initiative of an invasion will be lost. The ROC could provide support for its forces on the islands and

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<sup>199</sup> Ibid., p. 8.

<sup>200</sup> Martin L. Lasater, "Conflict in the Taiwan Strait: The American Response" *Taiwan Security Research* (February 2000), pp. 4-5. <http://taiwansecurity.org/IS/IS-Lasater-0200.htm>. 31 July 2003.

<sup>201</sup> Richard L. Russell, "What if... 'China Attacks Taiwan!'" *Parameters* (Autumn 2001), pp. 78-80.

possibly push the PLA off the islands. If this were to happen, the PLA would not only have failed to meet its objectives, but would also have suffered a loss of face.

For Beijing to be successful, a tight operational timeline would need to be met. Before moving onto Taiwan, the PLA would need to secure the islands, establish its logistical base, and begin moving forces to Taiwan within a 72-hour time period. If any later, the ROC could adequately prepare its defenses on Taiwan and repel an initial PLA assault. Also, a U.S. military presence could arrive from Japan in that time and provide Taiwan with support. Due to the intense pressure to accomplish these goals, PLA commanders must move their forces quickly. However, since an invasion force will consist of Fist units as well as regular infantry, the likelihood of moving these forces quickly is small. Due to the lack of mechanized equipment for its regular infantry and of joint training between these units, the PLA might not be able to meet the necessary timeline.

As its invasion force transits the Taiwan Strait, the PRC will need to ensure it has the air and naval assets available to defend against ROC forces. As noted earlier, severe doctrinal issues limit the PLA's ability to defend its invasion force at sea. First, the majority of PLA pilots, either in the navy or air force, do not conduct over-water flights. This hinders the PLA's ability to defend against ROC F-16s patrolling the Taiwan Strait. Second, the inability for air and naval assets to work jointly, particularly away from a PRC homeport, presents the possibility for friendly fire engagements as the PLA engages ROC aircraft. Third, the PLA air services do not train well with live ammunition. Without proper protection, PLA invasion forces could be decimated before they reach Taiwan.

Prior to PLA troops coming ashore, the PLA will need to deal with the risks involved with Taiwan's terrain. First, the weather surrounding Taiwan is extremely volatile and unpredictable. Stormy conditions and limited visibility are important factors in the PLA's planning. During the 1995-1996 military exercises, a typhoon formed and forced the PLA ships and aircraft operating to return to the mainland. Second, Taiwan's coast ensures shipping lanes are not deep enough for many ships and boats except in a few locations, which are the best defended by ROC forces. Also, the coastline is laced

with mud flats that extend two to five miles out to sea.<sup>202</sup> These flats would cause serious grounding problems for incoming landing craft as they approached Taiwan. Finally, the geography of Taiwan provides ROC forces with another natural defense. Depending on which coast the PLA chooses to assault, the invasion force would either have to contend with scaling mountains or contend with an option of not landing enough troops due to the lack of adequate LZs.<sup>203</sup> In the amount of time the PLA may need to offload its invasion force and establish its logistical base on Taiwan, ROC forces could create a bottleneck effect and inflict a large number of casualties on the PLA. This initial fighting could force the PLA to waste time it could not afford (See Figure 3).

If the PLA were able to meet its timeline and gain naval and air superiority over Taiwan, the PLA could begin a battle of attrition against ROC forces. Taiwan has roughly 2 million troops consisting of 21 active divisions (including the 5 divisions on the ROC controlled islands), 7 reserve divisions, 2 armored and mechanized divisions and 1 marine division deployed throughout Taiwan for internal defense.<sup>204</sup> The PLA would need to land enough troops, nearly 1 million, on Taiwan before heading inland. As the PLA marched through Taiwan, the ROC, due to its smaller numbers, can engage PLA forces in ambushes and numerous hit-and-run battles. If the PLA were victorious, whether destroying or forcing the ROC's surrender, the conflict would cause large amounts of civilian dead, the destruction of Taiwan's infrastructure and the end to Taiwan's economic strength. As with Hong Kong, Beijing wants to harness the economic prosperity that Taiwan has displayed and incorporate it for its own economic growth. The loss of regional and economic stability would not only affect China, but all of the countries in Asia.<sup>205</sup> The PRC wants to continue its economic growth, but with the certain loss of economic ties with the United States and Japan, and possibly with other nations, this would ensure an end to China's economic prosperity. For this reason alone, an invasion of Taiwan is not viable for the PRC.

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<sup>202</sup> Shambaugh, "A Matter of Time: Taiwan's Eroding Military Advantage," p. 122.

<sup>203</sup> June Tüefel Dreyer, "The PLA and the Taiwan Strait" (lecture, Tapei, Taiwan, 26-28 July 1999). <http://taiwansecurity.org/IS/Dreyer-The-PLA-and-the-Taiwan-Strait.htm>, 5 August 2003.

<sup>204</sup> Wood and Ferguson, p. 8.

<sup>205</sup> McVadon, "Taiwan's Dilemma."

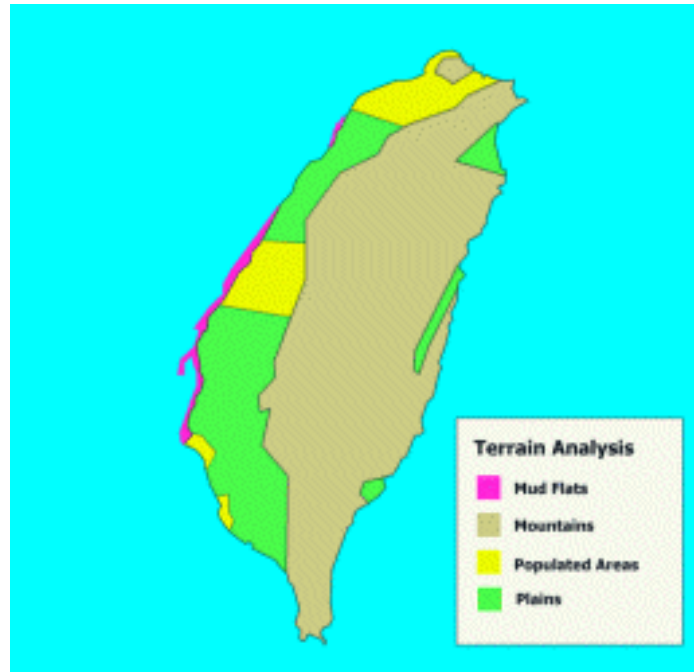


Figure 3. Federation of American Scientists, [www.fas.org/man/dod-101/taiwan-geo.htm](http://www.fas.org/man/dod-101/taiwan-geo.htm)

## 2. Naval Blockade

A naval blockade of Taiwan is the most likely scenario for aggressive reunification with the PRC. A blockade can be established quickly, cheaply and efficiently and, if Taiwan capitulates, the infrastructure of Taiwan would remain intact. The ROC understands that this is the most plausible scenario for the PRC and is preparing its own contingency plans to counter such a blockade.

If Taiwan does not capitulate fast enough, a naval blockade could be the first part of an amphibious assault. However, the timeframe the PRC could sustain operations in the Taiwan Strait, after achieving its modernization goals, is longer than the ROC could keep its citizens fed with the resources available. The blockade would drain ROC resources, particularly oil, and ensure a ROC inability to stage an effective counterattack. In 1999, an oil reserve on Taiwan fell from 120 days to only 18 days and considerably limits the ROC military response capability.<sup>206</sup>

To establish the blockade, the PRC could follow the example of the U.S. naval quarantine around Cuba in 1962. Before its ships were in place, the PRC could announce

<sup>206</sup> Shambaugh, *Modernizing China's Military*, p. 321. The information was originally presented by John Pomfret, "Taiwan's War Readiness and Military in Doubt," *International Herald Tribune*, 28 July 1999.

that it was blockading Taiwan and ROC-controlled islands.<sup>207</sup> After this announcement, the terms of the blockade would be established for the international community to avoid damage to shipping. A blockade provides numerous legal ambiguities for the PRC. First, a naval quarantine, instead of a blockade, would be declared against Taiwan. The PRC ships could legally be allowed to quarantine Taiwan and ROC-controlled territories without a declaring a state of war. However, under international law, an attack on PRC ships or aircraft enforcing the quarantine could be considered an act of war against China.<sup>208</sup> This ambiguity could force the international community to use diplomatic means to stop the PRC's quarantine. However, in the time it would take to act on behalf of Taiwan, the PRC might have forced Taiwan's capitulation.

The forces involved in quarantine could conduct three operations. First, they would establish air superiority over the Taiwan Strait. Without air superiority, PLAN ships would be subject to air attacks from ROC forces. Second, PRC forces would conduct MIW in the Taiwan Strait to deter U.S. and commercial shipping. The PRC would hope that once the waters around Taiwan have been mined, foreign insurance companies, fearing damages to its ships, would raise insurance prices and force ships heading toward Taiwan to turn around. As mentioned earlier, Taiwan's minesweeping capability is extremely limited.<sup>209</sup> Finally, the PRC could board and divert any commercial ships headed toward Taiwan to ensure supplies do not arrive. The lack of supplies would force Taiwan to capitulate quickly or allow its citizens to suffer from possible starvation. Also, if Taiwan tries to run the quarantine, there is a risk of escalating to a full-scale war between the ROC and the PRC.<sup>210</sup> If the quarantine escalates to war, then the outcome would become what neither the PRC nor Taiwan would want.

The biggest disadvantage of a naval quarantine is the time the PRC needs to establish and maintain it to allow success. The mines necessary for a blockade would need to be deployed quickly and covertly in order to prevent ROC assets from interfering

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<sup>207</sup> Shambaugh, *Modernizing China's Military*, p. 320.

<sup>208</sup> Paul H.B. Godwin, "Use of Military Force Against Taiwan," in *If China Crosses the Taiwan Strait: The International Response*, eds. Parris H. Chang and Martin L. Lasater, 15-33 (Lanham: University Press of America, 1993), pp. 22-23.

<sup>209</sup> O'Hanlon, "Why China Cannot Conquer Taiwan," p. 78.

<sup>210</sup> *Ibid.*, p. 322.

with PRC efforts. Once complete, the PRC would need to ensure it deters ROC warships and foreign freighters from interfering with the quarantine. If too many ROC or foreign warships were damaged or sunk, Washington could be forced to interfere and will present a direct threat to the quarantine. Finally, the longer the ROC took to capitulate, the longer the international community might have to act on behalf of Taiwan.<sup>211</sup>

International pressure may bring either aid to Taiwan or force a confrontation with PRC forces. Despite the disadvantages of a naval blockade, this is the PRC's best option for forcing reunification. The sheer number of PLA aircraft and warships provides the PRC an advantage over Taiwan. Also, the PRC efforts at military modernization can eventually negate the qualitative advantage ROC forces currently possess. However, if the PRC cannot find ways to defeat the United States, should it come to Taiwan's aid, then Beijing might fail to reunify Taiwan.

### **C. INFORMATION OPERATIONS**

The PRC recognizes that the United States is heavily reliant on technology when it goes into battle. If Washington comes to Taiwan's aid, its advanced military technology would be used to deter China. The PRC is developing options designed to exploit the U.S. military's reliance on technology in a variety of ways. One such option is the PRC's pursuit of the active use of information operations (IO). The PRC is designing its IO to disrupt U.S. logistics and communications, exploit the weaknesses of U.S. technology and develop an effective defense against U.S. military power.<sup>212</sup> The development of PRC IO came from its study of U.S. and coalition actions in the 1991 Persian Gulf War. During the course of the war, U.S. and coalition forces denied Baghdad its ability to gather intelligence and control its troops by attacking Iraqi intelligence and communication centers. U.S. and coalition forces targeted Iraqi C2 sites to destroy intelligence centers and force individual Iraqi units to surrender from a lack of a centralized command authority. While the United States used IO throughout the Persian Gulf War, the PRC intends to use IO only during the initial phases of combat in hopes to deter an escalation. The PRC realizes that once Washington is committed to military

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<sup>211</sup> Dreyer, "The PLA and the Taiwan Strait."

<sup>212</sup> James Mulvenon, "The PLA and Information Warfare," in *The PLA in the Information Age*, eds. James Mulvenon and Richard H. Yang, 175-186 (Santa Monica: RAND, 1999), p. 177.



action it will adapt to whatever IO the PRC is conducting.<sup>213</sup> Due to its inability to stop a stronger force, the PRC is working to defeat the United States through asymmetrical means, especially through the use of IO. The PRC is developing two types of IO: 1) electronic warfare (EW) and 2) computer-network attacks (CNA).

### **1. Electronic Warfare**

The PRC's EW capability stems from the reverse engineering of Western technology, the purchase of foreign--particularly Russian--systems and indigenous developments.<sup>214</sup> The use of EW in the Taiwan Strait could allow it to gain the initiative in the early days of any U.S. response. The PRC could deny the United States intelligence information by jamming its electronic equipment, using electronic deception to relay false information, and deny the United States the ability to counter these attacks through the hardening of its electronic facilities and various ECMs employed on PLA units.<sup>215</sup> The Department of Defense believes that the PRC will also employ EW in the Taiwan Strait through the use of UAVs. UAVs would be employed to patrol designated areas and intercept and find electronic signals from both U.S. and ROC forces. Then, through the use of radio and radar-jamming equipment, the PRC would disrupt the electronic equipment in order to covertly move its forces and cause confusion among both U.S. and ROC C2.<sup>216</sup> Current capabilities, to locate and counter UAVs are limited due to their small radar reflective signature.

The PRC is also developing EW capabilities for use from the mainland. The PRC recognizes that EW assets aboard ships and aircraft, while extremely effective, are vulnerable to eventual counterattack. From its studies of the Kosovo Campaign, the PRC took note of NATO aircraft emitting radar and radio jamming pulses to disrupt Serbian communication systems. However, when Serbian forces began hiding its C2 sites in caves and large population areas, NATO aircraft were unable to locate the Serbian sites

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<sup>213</sup> Brown, Prueher and Segal, p. 55.

<sup>214</sup> See *Annual Report on the Military Power of the People's Republic of China*, p. 35.

<sup>215</sup> Toshi Yoshihara, *Chinese Information Warfare: A Phantom Menace or Emerging Threat?* (Carlisle: Strategic Studies Institute, 2001), p. 37. <http://www.carlisle.army.mil/ssi/pubs/2001/chininfo/chininfo.htm>. 7 August 2003.

<sup>216</sup> See *Annual Report on the Military Power of the People's Republic of China*, p. 36.

and disrupt communications.<sup>217</sup> The PRC is developing its land-based EW capability to be mobile and to possess the range necessary to affect U.S. and ROC forces at sea. Also, the PRC is increasing its use of camouflage and concealment for radars and electronic equipment in order to deny U.S. satellites targeting information.<sup>218</sup> Finally, the PRC is devoting resources to countering U.S. attacks on its systems. With the installation of fiber optic cable and tougher encryption programs, the PRC has a better opportunity to deny outside interference from the United States. With these capabilities, the PRC could effectively negate the advantage the United States has relied on in previous conflicts.

While effective, EW has too much vulnerability to use alone against U.S. and ROC forces. The United States and ROC have numerous ECMs in place to defeat an electronic attack from the PRC. In order for an electronic attack to be successful, the PRC would also need to employ PGMs against U.S. military targets equipped with an ECM capability. By striking with PGMs, the PRC could effectively destroy or blind for a short time intelligence gathering capabilities, radars and other early warning systems.<sup>219</sup> However, the use of PGMs will no doubt cause a loss of life and the destruction of military assets in the area. By using PGMs, the PRC is inviting Washington to escalate the conflict and strike PRC forces in both the Taiwan Strait and the mainland. The United States could deploy more forces to the area in an effort to defeat PRC attacks and ensure no further attacks on Taiwan. This is not the route the PRC wants for reunification.

## **2. Computer-Network Attacks**

The use of computers by the U.S. military gives it a great advantage in combat. The United States recognizes that its computer and information systems are vulnerable to attack, and assured protection against attacks is still a long into the future.<sup>220</sup> The use of computers as an offensive tool is one the PRC's main focuses in preparation for combat against the United States. The PRC intends to use CNA to instill chaos and pandemonium in both Taiwan and the United States by turning off power grids and affecting

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<sup>217</sup> Shambaugh, *Modernizing China's Military*, p.76.

<sup>218</sup> Stokes, *China's Strategic Modernization*, p. 57.

<sup>219</sup> Edward Timperlake and William C. Triplett, *Red Dragon Rising* (Washington, DC: Regnery Publishing, 1999), p. 163.

<sup>220</sup> The Department of Defense's *Transformation Planning Guidance* discusses the transformation the U.S. military needs to protect its computer, space and information systems.

communication and financial networks in an effort to force a delay in action by both governments. By taking these measures, the PRC hopes that the United States and Taiwan would be too stunned to act against the PRC. Also, Beijing hopes that the ROC will submit to public outcries over the lack of electricity and money and capitulate quickly.<sup>221</sup>

According to the Cox Report, the PRC has obtained high performance computers capable of collecting, processing and analyzing intelligence and dedicated to denying the United States its own intelligence gathering capabilities.<sup>222</sup> The PRC is focusing on two methods to conduct CNA against the United States. These two attacks are computer viruses and through the use of the internet.

*a. Computer Viruses*

The PRC seeks to use computer viruses as an offensive tool against Taiwan and the United States.<sup>223</sup> Because of the recent string of worldwide computer viruses, the PRC is aware of the impact a computer virus can have on civilian, as well as military systems. The PRC also recognizes that it needs asymmetric means to defeat the United States and that a computer virus provides it with that possibility. Not only is a computer virus relatively easy to install, but deciphering the source's identity is relatively long and difficult. Also, a computer virus can be deployed and activated through a variety of methods. The heavy use of electronics for civilian and military purposes by the United States could allow the PRC to install a hidden virus in U.S. computer systems, keep it dormant until deemed necessary. Then, through the use of electromagnetic waves, Beijing could initiate the virus.<sup>224</sup>

The PRC calls the use of computer viruses against the United States "unrestricted warfare." The PRC believes the United States and Taiwan will react to attacks on its financial markets with frustration and indecision about how to respond to the attack. The PRC is developing computer viruses capable of attacking U.S. financial

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<sup>221</sup> Brown, Prueher and Segal, p. 55.

<sup>222</sup> House of Representatives Select Committee, Vol. 1, Ch. 3, pp. 104-105.

<sup>223</sup> Shambaugh, *Modernizing China's Military*, p. 78.

<sup>224</sup> Chen Huan, "The Third Military Revolution," in *Chinese Views of Future Warfare*, ed. Michael Pillsbury, 389-398 (Washington, DC: National Defense University, 1997), p. 395.

markets, as well as simultaneously attacking on power grids and communication networks.<sup>225</sup> The 2003 power blackout that affected the northeastern United States is a perfect example of the possible potential effects of a computer virus against the United States. Although not caused by a computer virus, the blackout caused the chaos and pandemonium Beijing would hope for in its initial CNA. For twelve hours the majority of the northeast was without power, the U.S. stock market was down, questions arose over the security of U.S. power grids and communication networks were disabled. This event displays the potential a computer virus has to cripple the nation's response capability.

**b. Internet**

Growing technology and the use of the Internet throughout the world provides the PRC with another avenue to launch asymmetrical attacks on the United States. The PLA believes the U.S. Department of Defense to be too reliant on civilian networks and its unclassified military network, NIPRNET, and it intends to use this to its advantage. PLA analysts believe that the PRC could attack these sites anonymously and degrade the response capability of the United States.<sup>226</sup> The PRC has already conducted attacks on U.S. websites using its Internet capabilities. In 1999, after the accidental bombing of the Chinese Embassy, the Chinese began to hack into U.S. and allied websites in retaliation. The PRC initiated the Internet attack by writing "down with the barbarians" on the U.S. Embassy in Beijing's homepage. Also, the PRC reported the blackout of numerous U.S. political and military websites as well as nearly 1000 civilian and NATO websites.<sup>227</sup> The PRC's attention to the Internet provides it great possibilities to use during the initial operational phases against Taiwan and the United States.

**D. SPACE WEAPONS**

In 2003, the PRC became the third nation in the world to send a man into space. This event not only has political ramifications, but military ones as well. Since 1985, the

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<sup>225</sup> David Wood, "China Explores Ways to Defeat Superior U.S. Forces in Fight: Weapons include Computer Viruses, Market Manipulation," *San Francisco Chronicle* (20 April 2001). <http://taiwansecurity.org/News/2001/SFC-042001.htm> 7 August 2003.

<sup>226</sup> Brown, Prueher and Segal, p. 55.

<sup>227</sup> Timothy Thomas, "The Internet in China: Civilian and Military Uses," *Information & Security*, Vol. 7 (2001): 159-173. [http://isn.ethz.ch/onlinepubli/publihouse/infosecurity/volume\\_7/c3/C3\\_index.htm](http://isn.ethz.ch/onlinepubli/publihouse/infosecurity/volume_7/c3/C3_index.htm) 7 August 2003. The information was originally presented in *The Liberation Army Daily* (27 July 1999) and *thedailycamera.com* (4 April 2001).

PRC has made considerable effort to modernize in the three environments available to its forces: land, sea and air. With space now available, the PRC is modernizing in that fourth environment, as well.<sup>228</sup> China's venture into space can allow it to threaten U.S. satellites and limit the U.S. military's access to intelligence information. Each satellite the PRC launches into space has one of two uses. PRC satellites are reportedly either used for intelligence gathering or potentially as anti-satellite (ASAT) weapons.

### **1. Intelligence Gathering**

The PRC's intelligence-gathering satellites are dedicated to developing meteorological, communications and surveillance systems for use against both the United States and Taiwan.<sup>229</sup> Particularly, the PRC is striving to use its space satellites to track the movements of ROC and U.S. naval forces around Taiwan in order to make counter moves with its own military. The PRC's ultimate goal for its satellites is to augment its C2 capability by obtaining real-time imaging data for its forces.<sup>230</sup> Also, the PRC is developing a GPS system that cannot be controlled by the United States and will allow for more accurate deployment of its forces. In 2000, the PRC launched a satellite that was the first of a Chinese GPS system in space.<sup>231</sup> As more PRC satellites are launched, its intelligence gathering capability might rival that of the United States.

### **2. Active ASAT**

The PRC is also developing a space program designed for offensive strikes against U.S. satellites in space. The PRC is developing three types of ASAT technology: 1) lasers; 2) direct ascent weapons; and 3) anti-satellite satellites. The Department of Defense believes that the PRC already possesses the capability to damage U.S. satellites using these capabilities.

#### ***a. Lasers***

The PRC has ground-based lasers (GBL) capable of destroying the optical sensors of satellites and denying the United States the ability to fully utilize its satellites.

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<sup>228</sup> A.V. Lele, "China as a Space Power," <http://www.idsa-india.org/an-apr5.htm>. 7 August 2003.

<sup>229</sup> Cheng, Dean. "Dragons In Orbit? Analyzing the Chinese Approach to Space." (lecture, Washington, DC, October 2000). [http://www.ndu.edu/inss/China\\_Center/CMA\\_Conf\\_Oct00/paper10.htm](http://www.ndu.edu/inss/China_Center/CMA_Conf_Oct00/paper10.htm). 4 August 2003.

<sup>230</sup> Ibid.

<sup>231</sup> Roger Cliff, *The Military Potential of China's Commercial Technology* (Santa Monica, Calif.: RAND, 2001), p. 29.

The PRC is using tracking devices to monitor the location and orbital track of U.S. satellites. Also, due to advanced technology, PRC lasers reportedly can engage satellites with less preparation time.<sup>232</sup>

***b. Direct Ascent***

Although Beijing currently does not possess the ability to destroy satellites, the Department of Defense cites examples of PRC R&D developing direct ascent ASAT systems that could be deployed between 2005 and 2010. This system could be launched directly from earth and used to target U.S. satellite systems. The Department of Defense cites Chinese scientific articles suggesting that the PRC should intensify research on direct ascent systems in order to destroy U.S. space systems and thus allow the PRC an ability to gain the initiative in battle.<sup>233</sup>

***c. Anti-satellite Satellites***

The final offensive ASAT capability in development is the use of anti-satellite satellites. Such satellites could be deployed using one of three methods to destroy U.S. satellites. First, the satellites may contain 30 gram steel balls that would be released in the orbit to destroy the outer shell of U.S. satellites. Second, the satellites may come equipped with paint or powder to cover the optical sensors of U.S. satellites. Finally, the satellites might be deployed with jamming equipment to interrupt U.S. communication or GPS satellites transmissions.<sup>234</sup> If the PRC were able to deny the United States its GPS capability while possessing its own, the PRC would have a tremendous advantage over the effective deployment of its forces.

**E. NEW CONCEPT WEAPONS<sup>235</sup>**

As the United States develops advanced weapons to fight its enemies, the PRC is mirroring this development in order to fight the United States. The PRC understands the advantages of using advanced weaponry against a superior enemy and has dedicated significant resources to deploying its own new weapons in the next twenty years.

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<sup>232</sup> Stokes, *China's Strategic Modernization*, p. 119.

<sup>233</sup> See *Annual Report on the Military Power of the People's Republic of China*, p. 36

<sup>234</sup> Stokes, *China's Strategic Modernization*, pp. 120-121.

<sup>235</sup> The 2003 *Annual Report on the Military Power of the People's Republic of China* discusses each new concept at length. Any data presented not from this source will be noted.

### **1. Kinetic Energy**

The Department of Defense believes the PLA is in the late stages of developing a kinetic energy weapon. The advantage of this weapon is that it would provide an unlimited number of rounds to destroy enemy targets, particularly combat aircraft, without providing a point of origin. The Department of Defense cites Chinese publications indicating that state the PLA hopes to deploy these weapons for its naval air defense. This indicates the PLA hopes to employ this weapon against the United States as it deploys ships and aircraft to aid Taiwan.

### **2. Laser**

The PRC has been researching the deployment of lasers since the 1960s and recognizes that lasers will be the weapons of choice for the 21<sup>st</sup> century.<sup>236</sup> The PLA is focusing its laser efforts on anti-personnel, counter-PGM air defense and ASAT roles. The PLA is developing solid-state, free electron, x-ray, and other types of lasers for varied purposes. These lasers are designed to destroy U.S. and Taiwan weapons--particularly tanks, infrastructure, electronics--and some are designed to make humans sick.<sup>237</sup> Also, the PLA is developing numerous types of lasers for use on its MBTs. These systems can help designate combat targets more accurately and reduce collateral damage during combat. However, like the kinetic energy weapons, the ability to harness the energy for more weapons remains unclear. Although lasers are still in a conceptual phase, the Department of Defense expects the PRC to become the leading producer and exporter of lasers for military technology by 2020.

### **3. Radiofrequency**

The PRC has publicly indicated that radiofrequency (RF) weapons are needed to defeat its enemies, particularly the United States, in the future. RF weapons are sometimes called the “superstars” of warfare due to their conceptual use as an electronic jammers or ASAT tools.<sup>238</sup> The PLA is developing high-powered RF weapons with help from foreign scientists and technology in an effort to destroy incoming missiles and

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<sup>236</sup> Stokes, *China's Strategic Modernization*, pp. 196-197.

<sup>237</sup> *Ibid.*, pp. 197-201.

<sup>238</sup> Timperlake and Triplett, p. 130.

disrupt U.S. communications by targeting the electronics on those systems. The PLA is attempting to adapt this technology on missile warheads or aircraft bombs so that they can be brought into combat using a mobile launch platform. However, the ability to mass-produce the amount of RF energy necessary to support such a mission remains unknown. Also, it is still unclear whether RF energy on a missile warhead would be more destructive than a conventional warhead. In addition, questions remain of the feasibility to harness RF energy.

## **F. SUMMARY**

The PRC strives for reunification with Taiwan. Publicly, the PRC wishes for peaceful reunification, but it reserves the right to use force against Taiwan if it calls for independence. The PLA is developing plans to coerce Taiwan's reunification either through an amphibious assault or a naval blockade. An amphibious assault, once the PRC's transport capability is augmented, can force the capitulation of Taiwan, but at a terrible cost to both Taiwan and the PRC. If the PRC conducts an all-out assault, Taiwan's economic prosperity will cease to exist. The PRC will have to inflict a war of attrition to defeat ROC forces and the collateral damage to Taiwan's infrastructure would be severe. However, a naval blockade presents the PRC with a tremendous opportunity. A naval blockade, dubbed a quarantine for legal ambiguity, would force a diplomatic approach to the crisis from the international community. As the international community used diplomacy to quell this crisis, the PRC's blockade would force Taiwan to deplete its food supplies and oil reserves. With the ROC's reserves only amounting to three weeks worth, Taiwan would need to decide quickly how to react to a blockade. In an effort to protect its citizens, the ROC would either have to fight or capitulate.

The PRC recognizes that if it uses aggressive action against the ROC, then the United States may come to its aid. The PRC also recognizes that it cannot defeat the U.S. military unless it resorts to asymmetric warfare and exploits the weaknesses of the U.S. reliance on technology. In particular, the PRC is developing information operations doctrine for use against the United States. Beijing's goal is to deny Washington its ability to gather intelligence in order to carry out operations in the Taiwan Strait. The PRC has also proven its willingness to use computers for its own benefit in the hopes to cause chaos and panic in both the United States and Taiwan.



The use of computer viruses and the Internet may allow China to affect America's financial markets, communication networks and power grids without Washington even knowing it was the PRC who sent the attack.

The PRC is not relying only on information operations to stop an U.S. response in Taiwan. The development of space technology is intended to damage or destroy U.S. satellites and deny Washington the ability to use its technology in combat. As it makes preparations against U.S. satellites, China is launching its own satellites into space that could provide the PLA with intelligence information on the movement of U.S. and ROC forces during conflict. Also, with the continued development of a Chinese GPS system, comparable to America's, the PLA may soon have access to an information tool that was previously only a Western technology. Along with a new array of advanced weapons, the PRC is preparing to fight the United States in the Taiwan Strait with the tools needed to be victorious.

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## VIII. CONCLUSION

### A. PLAN

The PRC seeks to operate a blue-water force and is no longer content with being limited to the littoral waters around China. The PRC has approached the PLAN modernization by decommissioning obsolete warships, retrofitting ships with advanced weapons systems and radars, developing an effective submarine fleet, and purchasing advanced naval platforms designed to sink U.S. warships. Many positive strides have been made to modernize the PLAN, but some crucial areas still remain untouched.

The PLAN's first major step toward operating a blue-water force was the purchase of 4 *Sovremenny* DDGs from Russia. These warships, specifically designed by the former Soviet Navy to sink U.S. aircraft carriers, would be used by the PLAN to deter U.S. aircraft carriers from entering the Taiwan Strait. The weapon systems onboard, particularly the 120nm Sunburn ASCM, makes it an effective weapon against a warship. However, the PRC purchased too few *Sovremenny* DDGs to defeat the quantitative and qualitative force both the United States and the ROC may have operating in the Taiwan Strait.

The PLAN's continued development of an undersea warfare capability is one of its greatest strengths. The purchase of 4 *Kilo* class submarines allows the PLAN to operate submarines in the Taiwan Strait that are as quiet as a *Los Angeles* class submarine.<sup>239</sup> Due to the lack of an adequate ASW capability in the area, the *Kilos* could potentially deter warships and commercial shipping from entering the Taiwan Strait. Also, since *Kilos* have the capability to conduct MIW, they can serve as efficient platforms to mine the Taiwan Strait and thereby provide support to a PRC naval blockade or quarantine.

### B. PLAAF

The PLAAF's modernization is due to the significant role air power plays in modern combat. Studying the conflicts in the Middle East and the Balkans, the PRC recognizes that a modern air fleet is necessary for future operations against Taiwan. The

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<sup>239</sup> Fisher, "Foreign Arms Acquisitions and PLA Modernization," p. 102.

PLAAF's modernization is dedicated to establishing air superiority over the Taiwan Strait, conducting sustained flight operations and defeating the advanced combat aircraft maintained in the ROC's Air Force.

The J-7 and J-8 airframes provide the PLAAF with limited avionics and air combat capability, but neither airframe is a match for the ROC F-16s. The PLAAF is currently deactivating many of its obsolete J-6s, the majority of PLAAF aircraft, and slowly replacing them with Russian Su-27 Flankers and Su-30 MKs. The PRC hopes these aircrafts will provide it with the air-to-air and all-weather capabilities it lacks in its current aircraft. While these aircraft are superior to anything in the ROC's inventory, the PRC has only received a fraction of the aircraft promised by Russia. Also, without the capability to mass produce either of these aircraft and the continuous failure to indigenously produce its own version, the PLAAF cannot afford to lose many of its newer aircraft in training.<sup>240</sup> With the PRC reluctant to fly its newer aircraft due to few replacements, PLAAF pilots will not likely achieve the efficiency to use these combat aircraft to their full potential.

The PLAAF is purchasing and developing a wide array of bombers and special mission aircraft for operations against Taiwan. Most of the bombers in the PLAAF inventory are from the 1950s, are obsolete, and lack any real capability to conduct attacks against Taiwan. However, the PRC hopes that through development of combat UAVs and the possible purchase of the Tu-22M Backfire from Russia, the PLAAF will gain the assets necessary to conduct bombing strikes against Taiwan. Also, with the development of an AWACs platform, the PRC hopes that this aircraft can provide C4ISR against both U.S. and ROC forces.

While making significant strides in modernizing its inventory, the PLAAF does not train in the doctrine necessary to become an effective air force. First, the lack of flight training, only 130 hours a year, does not permit the combat maneuvering necessary to win air superiority over the Taiwan Strait. Second, the PLAAF's inability to refuel in-flight greatly diminishes its ability to conduct sustained combat operations.<sup>241</sup> Finally, the

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<sup>240</sup> Shambaugh, *Modernizing China's Military*, p. 263.

<sup>241</sup> Godwin, "From Continent to Periphery," p. 216.

PLAAF's reluctance to conduct over-the-water flights, due to the inherent dangers, seems to ensure that the ROC can maintain air superiority over the Taiwan Strait. Until each of these doctrinal issues is addressed, the PLAAF is expected to remain limited in its ability to conduct effective combat operations against Taiwan.

### **C. SECOND ARTILLERY CORPS**

The PLA's Second Artillery Corps is the most modern force in the PLA. When the other services downsized, the Second Artillery Corps grew both in size and budget. The PRC is preparing its SMF for possible U.S. involvement during reunification operations. To do so, the Second Artillery Corps will maintain a large quantity of conventional and nuclear missiles in its inventory.

The Second Artillery Corps conventional missile inventory is the PRC's primary tool to coerce Taiwan's reunification.<sup>242</sup> The PRC does not want to use a nuclear missile against Taiwan because it seeks the economic prosperity Taiwan can provide when the two territories reunify. By launching a nuclear attack, China would largely negate its reunification efforts. Currently, the PRC has 350-400 missiles deployed across from Taiwan and that number is expected to rise to approximately 600 by the end of the decade. As its missile inventory increases, the Second Artillery Corps is modifying its missiles with technology that could provide accurate strikes against the ROC's C2 capabilities and reduce collateral damage on Taiwan's infrastructure.

The Second Artillery Corps nuclear missile inventory is the PRC's primary deterrent against the United States. The nuclear missiles in the SMF's inventory reach as far as Japan, Guam and the western United States. Also, with a long-range SLBM in development, the PRC could potentially strike anywhere in the United States with very little alert from U.S. early warning systems.

The use of a missile defense system on Taiwan will continue to be a controversial matter between the United States and the PRC. The PRC states that a BMD system on Taiwan would lead to missile proliferation and would be detrimental to peace and stability in the Asia-Pacific region. Also, China is adamant that a continued desire by the United States to deploy a BMD system on Taiwan would have a negative effect on U.S.-

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<sup>242</sup> Stokes, "Chinese Ballistic Missile Forces in the Age of Global Missile Defense: Challenges and Responses," p. 114.

PRC relations. The United States, however, believes the deployment of a BMD system can provide Taiwan with the necessary protection against the very credible Chinese missile threat.

#### **D. PLA**

The PLA is the most neglected branch in the Chinese armed forces. When the PRC's emphasis shifted from land warfare to air warfare, the army was no longer its center of attention. Although the army still receives a significant portion of the defense budget, the money goes to maintenance costs and not modernization. To aid in modernization efforts, the PRC reduced the army to 1.6 million, but it has continuously used those liberated funds for modernization in the other services. However, the PLA has begun limited efforts to transform into a lighter, more mechanized force capable of responding to a crisis more quickly and effectively.

The PLA has initiated three efforts to become a more mobile and responsive fighting force. First, the PLA has formed Fist units for rapid deployment to areas throughout China and to conduct initial attacks against Taiwan. However, the PRC has failed to form a Fist unit in each of its 20 group armies due to a lack of dedicated training. The PLA is also attempting to utilize SOF, in conjunction with Fist units, to conduct psychological operations against Taiwan and to deny ROC forces intelligence information during the first phases of an assault.<sup>243</sup> Second, the PLA has purchased Russian IFVs in an effort to transport its regular infantry forces faster and more efficiently into combat. However, these IFVs have only been issued to Fist units, not the regular infantry, thereby negating the sole reason for purchasing the IFVs. Finally, the PRC is purchasing and developing MBTs that are not only fast, but carry a wide variety of advanced payloads capable of successfully engaging U.S. and ROC MBTs. However, these efforts are currently meaningless against Taiwan due to the PRC's continually inadequate amphibious and transport capabilities.

#### **E. OPTIONS FOR THE TAIWAN STRAIT**

The PRC wants nothing less than reunification with Taiwan. If a peaceful resolution is not achieved, China has two viable scenarios for aggressive reunification.

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<sup>243</sup> See *Annual Report on the Military Power of the People's Republic of China*, p. 28.

An amphibious assault may allow China to reunify, but at a tremendous cost to both China and Taiwan. When hostilities end, China would not be in possession of an economically vibrant Taiwan, but instead a mere shadow of its former self. However, with a naval blockade, China is presented with several advantages. First, Taiwan does not have time to decide on what to do about a blockade. Supplies on Taiwan are limited, and would force the ROC government may be forced to decide quickly between letting its citizens to starve or escalating the situation and fighting the PRC. Second, by calling the blockade a quarantine, the PRC can create legal ambiguity. The PRC can blockade Taiwan without declaring war, however, if a PRC ship enforcing the blockade were attacked, then that would be an act of war.<sup>244</sup> Finally, due to the legal ambiguity of the naval quarantine, the PRC gains time to maintain its blockade while the international community resorts to diplomatic means to stop the PRC.

PRC planners are developing strategies for a U.S. intervention against Chinese operations around Taiwan. The PRC recognizes that it must resort to asymmetric methods to defeat technologically advanced force and intends to exploit the U.S. reliance on technology. By doing so, the PRC intends to deny U.S. forces the ability to gather intelligence and maintain effective C2 during operations around Taiwan. Also, the PRC intends to use computer attacks on installations against both the United States and Taiwan. The PRC hopes that a computer attack on financial markets, communication networks and power grids would cause enough confusion to force indecision and thereby allow the PRC to complete its operations against Taiwan before the United States could effectively respond.

## **F. SUMMARY**

The PRC's military modernization is focused on fighting future wars. The PRC has purchased advanced foreign equipment and is developing technology designed to transform the PLA into a more mobile, technologically advanced fighting force. In the past twenty years, Beijing has reduced its military manpower, increased its defense budget and forced modernization on its military. Through detailed analysis of U.S. military campaigns in the Middle East and the Balkans, the PRC is overhauling each of

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<sup>244</sup> Godwin, "Use of Military Force Against Taiwan," pp. 22-23.

its armed services to use many of the lessons already learned by the U.S. military. The PRC is developing advanced air and naval fleets to operate against U.S. and ROC forces in the Taiwan Strait. Also, the PRC is dedicated to maintaining a large quantity of missiles aimed at both the United States and Taiwan. While both are effective deterrents, neither provides the PRC with an overall increase in strength.

The PRC's modernization is a haphazard process and is focused on too few areas that will raise its overall strength. While modernizing its air force and missile fleet, the PRC is neglecting to modernize its infantry, build an adequate amphibious fleet, and train its forces on the doctrine necessary for sustained combat operations against Taiwan. Also, the PRC is plagued by China's inability to mass produce any of the foreign acquisition it receives, thereby leading to a potential lack of replacements and a reluctance to operate many of its advanced acquisitions. The PRC has made significant strides for its military to become a modern force, but not enough to augment its overall strength to successfully force Taiwan to reunify.



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